Marvin L. Meistrich, PhD

Interview Navigation Materials

Date submitted: 12 February 2018

Interview Information

Two sessions: 11 April 2017, 2 May 2017

Total approximate duration: 3 hours 50 minutes

Interviewer: Tacey A. Rosolowski, Ph.D.

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Interview Subject Snapshot:

Name: Marvin L. Meistrich, PhD
Interviewed: 2018
Primary appt: Department of Experimental Radiation Oncology
Research: Spermatogenesis, effects of chemotherapy on male fertility
Admin: NA
Other: Patient experiences
Interview link:

About the Interview Subject

Marvin L. Meistrich,[1] PhD, (10 October 1941, Brooklyn, New York) came to MD Anderson in 1772 as a 1972 as an Assistant Biophysicist and Assistant Professor in the Department of Experimental Radiotherapy in what was then called the Division of Radiotherapy.

Today he is a Professor in Department of Experimental Radiation Oncology, in the Division of Radiation Oncology. Dr. Meistrich is also a member of the Center for Radiation Oncology Research Group.

He is known for his work on spermatogenesis and has made a major contribution to categorizing the effects of chemotherapy treatments on male fertility. He retired to a partial appointment in 1012, retiring fully in 2017. In this interview, Dr. Meistrich speaks at length about his research

[1] Pronounced my-strish.

into spermatogenesis, about collaborations that led to changes in patient care, and about the environment for this research and care at MD Anderson. He also speaks about his patient experiences and receiving an incorrect cancer diagnosis.

Major Topics Covered:

Personal background

Educational path

Research: spermatid nuclear proteins, spermatogenesis, impact of chemotherapy on oncofertility; cryopreservation and transplantation

Attitudes toward addressing issues of oncofertility and sperm banking at MD Anderson

Research culture

The Department of Experimental Radiation Oncology, history of

Institutional change and growth

Retirement process

About transcription, the transcript, and the views expressed

This interview had been transcribed according to oral history best practices to preserve the conversational quality of spoken language (rather than editing it to written standards).

The interview subject has been given the opportunity to review the transcript and make changes: any substantial departures from the audio file are indicated with brackets [ ].

The Archives may have redacted portions of the transcript and audio file in compliance with HIPAA and/or interview subject requests.

The views expressed in this interview are solely the perspective of the interview subject. They do not represent the official views of any other individual or of The University of Texas MD Anderson Cancer Center.

Marvin L. Meistrich, PhD

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Marvin L. Meistrich, PhD

Chapter Summaries

Interview Session One: 11 April 2017

Chapter 00A
Interview Identifier

Chapter 01
Always Focused on Science and Math
A: Personal Background;

Codes
A: Character, Values, Beliefs, Talents;
A: Personal Background;

In this chapter, Dr. Meistrich, an only child, talks about his parents and his early realization that he wanted to focus on science and mathematics. He notes that two of his uncles were engineers and had an influence on him. He also explains that he wanted to attend one of New York City's science high schools and explains how he came to attend Brooklyn Tech [Brooklyn Technical High School], where he received very rigorous academic training. He notes the influence of his favorite teacher, who taught him the basic principles of calculus. Dr. Meistrich comments briefly on his preference for seeing data on a screen or on paper to be able to identify similarities and differences.

Chapter 02
Exploring Physics Major in College and Early Graduate School
A: Educational Path;

Codes
A: Character, Values, Beliefs, Talents;
A: Personal Background;

In this chapter, Dr. Meistrich talks about his early college experiences as a physics major at RPI [Rensselaer Polytechnic Institute, Troy, New York; BS 1962]. He explains that he came in with a good academic foundation and enjoyed the social life in college. He notes that college exposed him to mechanical shop courses, enabling him to build objects and structures, and he explains the importance of this. He talks about his decision to specialize in solid state physics and pursue an academic career, furthering his education at Cornell University [PhD, 1967].

Chapter 03
A Diagnosis and a Changing Career Focus
A: The Patient;

Codes
A: The Patient;
A: The Researcher;
A: Personal Background;
A: Professional Path;
A: Inspirations to Practice Science/Medicine;
A: Influences from People and Life Experiences;
A: Experiences Related to Gender, Race, Ethnicity;
C: Formative Experiences;
C: Evolution of Career;

Dr. Meistrich begins this chapter by explaining that after a couple of years, he was becoming disenchanted with physics and began looking at other fields. Then, in January of 1965, he had a lump removed and was diagnosed with non-Hodgkin's lymphoma. Dr. Meistrich explains when he was prescribed radiotherapy, he asked about the effects on his fertility, and did not receive a satisfactory response. He talks about the treatment, and explains that his diagnosis and poor prognosis made him question whether to return to his graduate program. He did go back and decided to shift his focus to biophysics. He talks about some of the courses he began taking in that area.

Chapter 04
Postdoctoral Study in Biophysics
A: Educational Path;

Codes
A: The Researcher;
A: Personal Background;
A: Professional Path;
A: Inspirations to Practice Science/Medicine;
A: Influences from People and Life Experiences;
C: Evolution of Career;

In this chapter, Dr. Meistrich talks about his two postdoctoral programs, the first in Radiation Biology at Bell Telephone Laboratories [Murray Hill, New Jersey, 1967−1969], where he conducted nuclear magnetic resonance studies on proteins. He also explains how, at this time, he became interested in genetic studies.

Next he talks about his postdoctoral program at the Ontario Cancer Institute [Toronto, Canada, 1969−1972], where he worked with a group of medical physicists. He also notes that physicians at the cancer institute looked at his own case, but did not do much for him.

Chapter 05
Early Research on Spermatogenesis
A: The Researcher;

Codes
A: The Researcher;
A: Definitions, Explanations, Translations;
A: Overview;
C: Discovery and Success;
A: Joining MD Anderson;
A: Overview;
A: Definitions, Explanations, Translations;

In this chapter, Dr. Meistrich discusses his the early work on spermatogenesis that he conducted at the Ontario Cancer Institute. He explains that he liked the precision of the process that cells undergo to product a mature sperm cell. He explains that he was focused on separating cells at different phases of the developmental process so that the proteins in their nuclei could be analyzed biochemically.

[The recorder is paused.]

Dr. Meistrich points out the different stages of sperm cell development. [He refers to diagrams during this discussion.] He notes that in 1974 he discovered a new transition protein in the nucleus; he focused on nuclear proteins from the early seventies to the mid-200s.

Chapter 06
Coming to MD Anderson to Work on Oncofertility
A: Joining MD Anderson/Coming to Texas;

Codes
A: The Researcher;
A: Personal Background;
A: Professional Path;
A: Inspirations to Practice Science/Medicine;
A: Influences from People and Life Experiences;
C: Evolution of Career;

In this chapter, Dr. Meistrich talks about how he came to MD Anderson. He explains that after five years of postdoctoral work, he felt ready for a faculty position. He describes the first phase of his job search and notes that he was attracted to a job at MD Anderson because of positive reports he had heard about Rob Withers, the new chair of the Department of Radiotherapy.

Chapter 07
Study of Nuclear Proteins in Sperm Cells and on Stem Cells
A: The Researcher;

Codes
A: The Researcher;
B: MD Anderson Culture;
C: Discovery and Success;
B: MD Anderson Culture;
B: Multi-disciplinary Approaches;

In this chapter, Dr. Meistrich talks about how his research evolved once he arrived at MD Anderson. He first sketches the collegial social and research environment. Next, he explains that he collaborated with researchers in biochemistry to work on nuclear proteins of sperm cells in mice, noting that three of his papers are listed among the top ten citations on separation of sperm cells. He explains the impact of these studies.

Next, Dr. Meistrich describes a new line of animal research, looking into how regeneration of fertility can occur after stem cells are destroyed. This involved first studying the effects of chemotherapies and identifying which destroyed stem cells. Next, studies investigated how to predict how long sterility would persist once the stem cells were destroyed.

Chapter 08
Studying Fertility in Humans; Part II of the Cancer Story
A: The Researcher;

Codes
A: The Researcher;
A: The Patient;
A: Personal Background;
B: Multi-disciplinary Approaches;
C: Discovery and Success;
B: MD Anderson Culture;
B: Research;

Dr. Meistrich begins by explaining that he began to explore how to study the effects of chemotherapy on human fertility. In the late seventies, he designed an n of one protocol to collect sperm samples before and after chemotherapy.

Next, he tells the story of going to the MD Anderson clinic to address his own cancer. He arranged to have his pathology slides transferred to MD Anderson. Dr. Jim Butler then informed him that he had been misdiagnosed and had a non-malignant tumor.

He continues with his story of human research. He explains why MD Anderson clinicians were not eager to pursue studies that detailed the effects of chemotherapy on male fertility. He explains the first protocol approved. He talks about his reliance on Miguel Dakuna, who spoke to the patients involved in the study, and talks about the results, published in 1983 or '84.

Next, Dr. Meistrich describes the multidisciplinary approach to treating lymphoma patients. He notes that the lymphoma group was decreasing the number of doses of MOPP chemotherapy from four to two. Dr. Meistrich conducted studies on the effects on fertility, noting that the lower number of doses preserved fertility.

He notes that he had a very good working relationship with the Lymphoma Section as well as with the Melanoma/Sarcoma Clinic. He explains that one of his most important accomplishments was to characterize how different doses of chemotherapy have differing sterilizing effects.

Interview Session Two: 2 May 2017

Chapter 00B
Interview Identifier

Chapter 09
Conducting Fertility Research: Challenges and Results
A: The Researcher;

Codes
A: The Researcher;
A: Personal Background;
A: The Patient;
B: MD Anderson Culture;
B: Research;
C: Discovery and Success;
A: Definitions, Explanations, Translations;
A: Overview;
B: Critical Perspectives on MD Anderson;

In this chapter, Dr. Meistrich expands on his discussion of fertility preservation research in session one. He first notes that his personal experience of being treated for suspected lymphoma inspired him to conduct fertility research, then he goes on to discuss his efforts to institute sperm banking at MD Anderson. He notes that he and his assistant were "very naïve" about the legal issues involved: once the administration became aware of what they were doing, there was little support for creating an MD Anderson sperm bank. Dr. Meistrich talks about the advantages that such a repository would offer to patients and to researchers. He explains the difficulties of acquiring samples for research, given current regulations.

Next, Dr. Meistrich talks about changes in addressing fertility and sexuality issues with patients, a topic that was rarely addressed when he began work in the area. He notes two contributors to this area: Leslie Schover, PhD in the Department of Behavioral Science and Terri Woodard, MD, In Gynecologic Oncology.

Next, Dr. Meistrich discusses challenges to collaborating with other departments in making movement in this area. He observes that there was more of a collaborative spirit in the past. He then gives an example of a good collaboration with a colleague who supported his interest in using equipment to perform laser-capture micro-dissection.

Dr. Meistrich then continues with his discussion of fertility preservation, noting that the simplest solution is sperm banking.

He then speaks about his interest in addressing fertility in pediatric cancer patients, for whom freezing tissues is a good option. He explains that this is not a high priority at MD Anderson. He explains a study he conducted on the process of using cryo-preservation and transplantation to restore fertility, with a report on his positive results.

Chapter 10
Fertility Research and the Value of Technology and Advanced Techniques
A: The Researcher;

Codes
A: Overview;
A: The Researcher;
A: Definitions, Explanations, Translations;
B: Devices, Drugs, Procedures;
D: Technology and R&D;

In this chapter, Dr. discusses several of his research projects to demonstrate the value of technology and advanced techniques in driving discovery. He first lists some of the key advances that have made a difference to research: DNA sequencing technology, molecular techniques, and the ability to make transgenic animals among them. He talks about the methods he used in the transplantation study (described in Chapter 09), and also talks about cellular and in vitro techniques that have been developed in the last five years.

Dr. Meistrich then goes on to give examples of work using the genetic analysis of sperm and talks about his results. He also discusses the impact of the discovery of mini- and micro-satellites in DNA sequences. He talks about a collaborative study he did on the effects of chemotherapy on these strings, noting that they were not affected by chemotherapy or radiation.

He then notes that progress needs to be made in the accuracy of sequencing an entire genome and discusses what that would enable.

Chapter 11
An Overview of the Department Experimental Radiation Oncology
B: An Institutional Unit;

Codes
B: MD Anderson History; B: MD Anderson Snapshot;
B: MD Anderson Culture;
B: Critical Perspectives on MD Anderson;
B: Research;
B: Care; D: On Care;

In this chapter, Dr. Meistrich talks about shifts in emphasis that new department chairs brought to the department. He observes that when he arrived at MD Anderson, the department was new, collaborative, and researchers conducted a lot of "good radiation biology." When the chair, H. Rodney Withers left in around 1980, Ray Mind served as interim chair until Junjie Chen was appointed. He explains that Dr. Chen recruited good faculty, but shifted emphasis away from projects that focused on experimental radiation therapy that would serve patients. Dr. Meistrich talks about the pros and cons of this, but emphasizes that currently the faculty in the department are not conducting research to enhance the understanding of how radiation can serve clinical applications and clinicians' needs. He notes that departments at other institutions are also shifting emphasis in this way.

Chapter 12
Views on Changes at MD Anderson Since the Seventies
B: Institutional Change;

Codes
B: Growth and/or Change;
B: Obstacles, Challenges;
B: Institutional Politics;
B: Controversy;
B: MD Anderson in the Future;
B: Critical Perspectives on MD Anderson;
B: MD Anderson Culture;
B: Working Environment;
B: The Business of MD Anderson; C: The Institution and Finances;
B: Gender, Race, Ethnicity, Religion;
B: MD Anderson History; B: MD Anderson Snapshot;

In this chapter, Dr. Meistrich reflects on changes to the institution over the course of his career, beginning with the recent institutional turbulence under Dr. Ronald DePinho [oral history interview]. He explains some reasons why Dr. DePinho was very unpopular with the faculty. He explains his hopes that the institution regains financial security despite not having preferred

provider status among insurers such as Blue Cross Blue Shield. He recalls that he and many other faculty members were very optimistic that Dr. DePinho would bring positive change as he was the first qualified scientist to occupy the president's office. He explains that a scientist could drive the development of a higher quality faculty with more National Academy members.

Next, Dr. Meistrich reflects on changes to MD Anderson culture that have come with increase in size. He talks about the change in ambiance and the lack of connection among faculty. He also observes that changes in the ethnic distribution of researchers has contributed to a less collegial culture.

Chapter 13
Transitioning to Full Retirement: Institutional Challenges
A: Post-Retirement Activities;

Codes
A: Critical Perspectives;
A: Obstacles, Challenges;
A: Post Retirement Activities;
B: Institutional Processes;
B: Devices, Drugs, Procedures;
B: MD Anderson Culture;
B: Working Environment;

In this chapter, Dr. Meistrich sketches some of his frustrations with MD Anderson administration regarding his retirement. He explains that he officially retired in 2012, but was appointed to modified service to continue his research. He elected not to take his salary in order to not to siphon funds from his grants. He next explains new administration rules that faculty with modified service must have a minimum salary. He explains the problems this creates, noting that he does not want to retire, but the administration seems to be creating incentives to push individuals to full retirement. He sketches the contributions that retired and emeritus faculty provide to other institutions.

In the final minutes of the interview, Dr. Meistrich notes that he would like to see the Faculty Senate work more productively within the institution. He comments on the value of the seven-year renewable tenure model.

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Marvin L. Meistrich, PhD

Interview Session One: April 11, 2017

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Chapter 00A
Interview Identifier

Tacey Ann Rosolowski, PhD
[01:00:00]
I'm Tacey Ann Rosolowski, and today is April 11, 2017. The time is five minutes after ten in the morning and I'm interviewing Marvin L. Meistrich. And am I saying that correctly?
[00:00:12]

Marvin L. Meistrich, PhD
[00:00:12]
Yeah. I usually use Meistrich[1].
[00:00:15]

Tacey Ann Rosolowski, PhD
[00:00:15]
Meistrich, okay, all right.
[00:00:17]

Marvin L. Meistrich, PhD
[00:00:17]
But sometimes it comes out the other -- yeah.
[00:00:20]

[1] Pronouced “my-strish”.

Tacey Ann Rosolowski, PhD
[00:00:19]
Well no, I mean it's for the record, so we want it right. So, Marvin L. Meistrich, for the Making Cancer History Voices Oral History Project, run by the Historical Resources Center at the Research Medical Library at MD Anderson Cancer Center in Houston, Texas. Dr. Meistrich came to MD Anderson in 1972, as an assistant biophysicist and assistant professor, in the Department of Experimental Radiation Oncology, in what was then called the Division of Radiotherapy. Is that correct?
[00:00:50]

Marvin L. Meistrich, PhD
[00:00:51]
The department was then called Department of Experimental Radiotherapy.
[00:00:56]

Tacey Ann Rosolowski, PhD
[00:00:56]
Radiotherapy, okay, thank you.
[00:00:59]

Marvin L. Meistrich, PhD
[00:00:59]
So, the radiation, both the department and division got changed to Radiation Oncology, oh I'd say some time in the '90s. You could leave that on.
[00:01:10]

Tacey Ann Rosolowski, PhD
[00:01:11]
No, no, I'm just going to turn it up a little bit. Your voice is a little quieter than I expected, so that's all right.
[00:01:18]

Marvin L. Meistrich, PhD
[00:01:19]
Some time in the '90s, because of the perception that a radiotherapist is a radiotherapy technician.
[00:01:28]

Tacey Ann Rosolowski, PhD
[00:01:28]
Oh, I see, okay.
[00:01:30]

Marvin L. Meistrich, PhD
[00:01:29]
And a radiation oncologist is a doctor.
[00:01:33]

Tacey Ann Rosolowski, PhD
[00:01:33]
A different level of expertise, yes.
[00:01:35]

Marvin L. Meistrich, PhD
[00:01:34]
Yeah. Actually, our Department of Experimental Radiotherapy, they had an excellent reputation at that time, in the Radiation Ward, and we didn't want it changed.
[00:01:47]

Tacey Ann Rosolowski, PhD
[00:01:47]
Oh, interesting.
[00:01:48]

Marvin L. Meistrich, PhD
[00:01:49]
But, we went along with the division.
[00:01:50]

Tacey Ann Rosolowski, PhD
[00:01:51]
Right.
[00:01:51]

Marvin L. Meistrich, PhD
[00:01:51]
Because they want to be radiation oncologists and not radiotherapy technicians.
[00:01:55]

Tacey Ann Rosolowski, PhD
[00:01:56]
Isn't it interesting. I mean, I've gotten so many stories about the history of departmental names here and it's interesting, the issues that kind of come together to create those choices.
[00:02:06]

Marvin L. Meistrich, PhD
[00:02:06]
Yeah, because kind of ERT was, you know, our, our name.
[00:02:10]
Tacey Ann Rosolowski, PhD
[00:02:10]
Oh, right.
[00:02:10]

Marvin L. Meistrich, PhD
[00:02:11]
And you know, we had it for many years, that was our reputation. So, anyway, we didn't want to change.
[00:02:18]

Tacey Ann Rosolowski, PhD
[00:02:19]
But you did.
[00:02:19]

Marvin L. Meistrich, PhD
[00:02:20]
Yeah, we went along.
[00:02:21]

Tacey Ann Rosolowski, PhD
[00:02:20]
Yeah. Okay, let me just, a couple other details. Today, Dr. Meistrich is a professor in the Department of Experimental Radiation Oncology, in the Division of Radiation Oncology. Also, you're a member of the Center for Radiation Oncology Research.
[00:02:38]

Marvin L. Meistrich, PhD
[00:02:39]
Yeah.
[00:02:39]

Tacey Ann Rosolowski, PhD
[00:02:40]
Okay. This session is being held in Dr. Meistrich's office, in the Zayed Building, on the main campus of MD Anderson, and this is the first of two planned interview sessions. So thank you again, for making the time.

Interview Session: 01
Interview Date: April 11, 2017

Chapter 01
Always Focused on Science and Math
A: Personal Background;

Codes
A: Character, Values, Beliefs, Talents;
A: Personal Background;

Tacey Ann Rosolowski, PhD
[00:02:40]+
I wanted to just start in kind of the usual place, which is to ask you where were you born and when, and tell me a little bit about your family.
[00:03:02]

Marvin L. Meistrich, PhD
[00:03:02]
Okay. Born in Brooklyn, New York, in 1941, in the Brighton Beach area of Brooklyn.
[00:03:12]

Tacey Ann Rosolowski, PhD
[00:03:14]
Do you mind sharing your birthdate?
[00:03:16]

Marvin L. Meistrich, PhD
[00:03:17]
October 10th, ten/ten, which makes it easy when it goes day, month year, or month, day year.
[00:03:24]

Tacey Ann Rosolowski, PhD
[00:03:24]
Ten-ten, of course, yes.
[00:03:26]

Marvin L. Meistrich, PhD
[00:03:32]
Family, I'm an only child. My grandparents, only one of whom was alive when I was born, were all immigrants as children, from Eastern Europe.
[00:03:47]

Tacey Ann Rosolowski, PhD
[00:03:48]
Where?
[00:03:48]

Marvin L. Meistrich, PhD
[00:03:50]
Father's family were Polish Jews, and my mother's family were Romanian Jews, and I always found that interesting, that two Polish Jews married and two Romanian Jews married. Like those communities were separate, even in New York, even in the Lower East Side of New York; Romanian Jews lived here and the Polish Jews lived here.
[00:04:16]

Tacey Ann Rosolowski, PhD
[00:04:16]
Interesting, but love triumphed.
[00:04:19]

Marvin L. Meistrich, PhD
[00:04:19]
Yeah. Oh, no, no, the Romanians married Romanians, and the Poles married the Poles, yeah.
[00:04:24]

Tacey Ann Rosolowski, PhD
[00:04:22]
Oh, I see, they retained the separation.
[00:04:25]

Marvin L. Meistrich, PhD
[00:04:25]
Yeah.
[00:04:25]

Tacey Ann Rosolowski, PhD
[00:04:26]
Interesting. Was your family very observant?
[00:04:28]

Marvin L. Meistrich, PhD
[00:04:29]
No, no.
[00:04:30]

Tacey Ann Rosolowski, PhD
[00:04:29]
Okay, interesting, huh. And are you?
[00:04:33]

Marvin L. Meistrich, PhD
[00:04:34]
No, no.
[00:04:36]

Tacey Ann Rosolowski, PhD
[00:04:35]
Okay, so that, that --
[00:04:36]

Marvin L. Meistrich, PhD
[00:04:36]
I'm Jewish. I've got a bag of matzo there for my lunch this week, but I'm not very observant.
[00:04:43]

Tacey Ann Rosolowski, PhD
[00:04:43]
Okay, so culturally Jewish.
[00:04:44]

Marvin L. Meistrich, PhD
[00:04:44]
Yeah.
[00:04:44]

Tacey Ann Rosolowski, PhD
[00:04:45]
Yes. So, what did your family do?
[00:04:48]

Marvin L. Meistrich, PhD
[00:04:49]
My father, he worked for like forty years, for Dun & Bradstreet, which is a company that does credit ratings on businesses. Of course in New York, the garment industry is a big thing and he would kind of interpret credit ratings of retailers for the garment industry, when they sold to retailers on credit. My mother didn't go back to work until I probably was in high school, and that was to help pay for my college.
[00:05:41]

Tacey Ann Rosolowski, PhD
[00:05:42]
And what did she do?
[00:05:43]

Marvin L. Meistrich, PhD
[00:05:44]
She was the bookkeeper for a company.
[00:05:48]

Tacey Ann Rosolowski, PhD
[00:05:49]
So tell me a little bit about kind of the evolution of your interests as a young person.
[00:05:54]

Marvin L. Meistrich, PhD
[00:05:54]
Okay. I guess I probably always liked science and math, and I guess probably in oh, somewhere along in elementary school or junior high school, I kind of realized that I had a talent in that area.
[00:06:21]

Tacey Ann Rosolowski, PhD
[00:06:22]
And how did you come to that realization, what was giving you the clues?
[00:06:25]

Marvin L. Meistrich, PhD
[00:06:27]
Well, I liked my science and math courses and I didn't care for my other courses very much, though I studied and got decent grades in all of them.
[00:06:42]

Tacey Ann Rosolowski, PhD
[00:06:43]
Did you have science-y hobbies or anything?
[00:06:44]

Marvin L. Meistrich, PhD
[00:06:45]
Actually not very many, yeah. I figure, gee I should have.
[00:06:50]

Tacey Ann Rosolowski, PhD
[00:06:51]
Oh no, you did okay without them.
[00:06:52]

Marvin L. Meistrich, PhD
[00:06:53]
Yeah. Also, I wasn't kind of an engineer kid, I didn't tinker with things. We lived in an apartment, so it wasn't you know, a lot that you would have to do, like you have to do around a house, where now I have to be a handyman on a lot of things. My kids saw that. Boy, my father didn't have to do that.
[00:07:28]

Tacey Ann Rosolowski, PhD
[00:07:28]
Right, right.
[00:07:29]

Marvin L. Meistrich, PhD
[00:07:30]
So, I really didn't learn those things. So, since that was clearly my interest, I looked at the science and engineering high schools in New York, which are three of them; Brooklyn Tech, which was the closest, Peter Stuyvesant, which is in Manhattan and a little bit further away, and Bronx High School of Science, which had the best reputation but it was the furthest away.
[00:08:05]

Tacey Ann Rosolowski, PhD
[00:08:07]
I neglected to ask you, was there anyone else in your family that were -- they were scientifically oriented or medically oriented?
[00:08:16]

Marvin L. Meistrich, PhD
[00:08:17]
Not science or medicine but engineering. So I had -- actually, they were my mother's cousins, but kind of in-between my mother's generation, because my grandmother's younger sister. One was an electrical engineer who did a lot of work in the war and postwar years, with RCA, on radar, and the other was -- the other is still alive, a metallurgical engineer.
[00:09:00]

Tacey Ann Rosolowski, PhD
[00:09:02]
And did you know these folks? Did you chat with them and kind of get a sense of what they did?
[00:09:07]

Marvin L. Meistrich, PhD
[00:09:05]
Yeah. Yeah, mm-hmm.
[00:09:08]

Tacey Ann Rosolowski, PhD
[00:09:10]
Okay, so yeah, I mean it's always interesting, how people kind of find out what it wants to do.
[00:09:14]

Marvin L. Meistrich, PhD
[00:09:13]
Yeah. So those were the only family members in science or engineering or medicine. Yeah, I'd say they were an influence on me.
[00:09:28]

Tacey Ann Rosolowski, PhD
[00:09:30]
Now, how did your parents respond? Did they suggest you go to Brooklyn Tech, was that your desire?
[00:09:37]

Marvin L. Meistrich, PhD
[00:09:40]
Mine, yeah. It just seemed a natural thing, and then I said oh, look cousin Fred and cousin

Harold, they're engineers and they were proud of them. They were certainly supportive of that.
[00:10:01]

Tacey Ann Rosolowski, PhD
[00:10:02]
Now, were those high schools public high schools?
[00:10:05]

Marvin L. Meistrich, PhD
[00:10:04]
Yeah, oh yeah.
[00:10:05]

Tacey Ann Rosolowski, PhD
[00:10:05]
Okay, yeah, I was just curious. I thought I recalled that from other people's stories.
[00:010:09]

Marvin L. Meistrich, PhD
[00:10:09]
Yeah, mm-hmm.
[00:10:10]

Tacey Ann Rosolowski, PhD
[00:10:11]
So, tell me about going there. Was it like a big revelation, or how did you find it?
[00:10:16]

Marvin L. Meistrich, PhD
[00:10:20]
I'll say, it was right for me, but I didn't have -- you know socially, it was the antithesis of the usual high school experience, where you go to your neighborhood high school and you know the kids in your neighborhood, boys and girls, and there's a football team scene. Brooklyn Tech was all boys at the time. It was a large high school in ten stories, square block building, no campus. The gym and the ballfields were on the roof.
[00:11:15]

Tacey Ann Rosolowski, PhD
[00:11:16]
Clearly not a priority.
[00:11:17]

Marvin L. Meistrich, PhD
[00:11:18]
Yeah. But they actually had a good football team out of 6,000 boys, and also it was rigorous. One reason it was rigorous is at that time, it was actually quite common in New York, to go to the SP junior high program, where you do three years of junior high, and two. So, I did seventh, eighth, and ninth in two years, which was obviously more work than other kids. Again, probably the SP kids didn't have the junior high. I don't even know if our junior high had sports teams, like junior high.
[00:12:27]

Tacey Ann Rosolowski, PhD
[00:12:27]
Why did you want to do that accelerated program?
[00:12:29]

Dr. Meistrich
[00:12:29]
Because I got in it and I was good enough, and probably, I was with kids that were more like me.
[00:12:37]

Tacey Ann Rosolowski, PhD
[00:12:39]
And what kind of kid was that?
[00:12:40]

Marvin L. Meistrich, PhD
[00:12:42]
Studious, interested in academics.
[00:12:48]

Tacey Ann Rosolowski, PhD
[00:12:50]
Did you have a sense of what you wanted to do after school or going to college?
[00:12:54]

Marvin L. Meistrich, PhD
[00:12:53]
Nothing, no. You know, go on to college, go on -- I mean, science and math were my strong points, so.
[00:13:05]

Tacey Ann Rosolowski, PhD
[00:13:05]
But you dildn't have a particular field that you targeted.
[00:13:08]

Marvin L. Meistrich, PhD
[00:13:07]
Oh no, no.
[00:13:08]

Tacey Ann Rosolowski, PhD
[00:13:08]
Yeah, okay. So how, in terms of the education, you know, were there certain subjects that came forward as being really a passion of yours?
[00:13:21]

Marvin L. Meistrich, PhD
[00:13:21]
Yeah. In high school, I took some math. So, we had a math team. I wasn't a starter on the team, there was lots more kids than I, but we had math team practice, where they'd give us problems. This was maybe once a week during lunch hour and gee, I really enjoyed that.
[00:14:01]

Tacey Ann Rosolowski, PhD
[00:14:01]
So how did that work? I mean, did you have a time, it was timed?
[00:14:05]

Marvin L. Meistrich, PhD
[00:14:05]
Yeah, yeah.
[00:14:06]

Tacey Ann Rosolowski, PhD
[00:14:06]
Oh, okay. Yeah.
[00:14:07]

Marvin L. Meistrich, PhD
[00:14:08]
And then when there was a meet, I guess this was in the 1950s, but somehow, they may have had phone communication with the other schools that you know, were doing the same problems, when they would actually have a competition.
[00:14:26]

Tacey Ann Rosolowski, PhD
[00:14:26]
Oh, wow.
[00:14:27]

Marvin L. Meistrich, PhD
[00:14:27]
The team, maybe five kids, would actually do the problem, and then the rest of us would do it, but it kind of wouldn't count within the actual competition.
[00:14:40]

Tacey Ann Rosolowski, PhD
[00:14:41]
So were these purely mathematical or were they word problems?
[00:14:45]

Marvin L. Meistrich, PhD
[00:14:46]
Sometimes some logic problems. Yeah, kind of math and logic.
[00:14:51]

Tacey Ann Rosolowski, PhD
[00:14:52]
So they really --- so that was like a huge smorgasbord of different challenges.
[00:14:56]

Marvin L. Meistrich, PhD
[00:14:56]
Yeah. And then I would say my favorite teacher of everything was, -- so my senior year we had physics. I guess we probably did chemistry the year before, never did biology in high school.
[00:15:12]

Tacey Ann Rosolowski, PhD
[00:15:12]
Oh really?
[00:15:13]

Marvin L. Meistrich, PhD
[00:15:15]
What I really liked about physics, so in doing Newton's laws of acceleration, and without calling it calculus, he taught us the basic principles of calculus, to figure out distance, travel and accelerating body. We have to see how much it's accelerating, in an infinitesimal time, and really derive calculus from basic thought principles.
[00:15:51]

Tacey Ann Rosolowski, PhD
[00:15:51]
Wow, wow.
[00:15:52]

Marvin L. lMeistrich, PhD
[00:15:52]
So I never had to memorize that.
[00:15:55]

Tacey Ann Rosolowski, PhD
[00:15:56]
You could always fall back on the derivation.
[00:15:59]

Marvin L. Meistrich, PhD
[00:15:58]
Yeah. Understanding of how it was derived.
[00:16:04]

Tacey Ann Rosolowski, PhD
[00:16:04]
Yeah. What was the teacher's name?
[00:16:06]

Marvin L. Meistrich, PhD
[00:16:07]
Dr. Robert Sachs.
[00:16:10]
Tacey Ann Rosolowski, PhD
[00:16:11]
S-A-X?
[00:16:12]

Marvin L. Meistrich, PhD
[00:16:12]
S-A-C-H-S. I think his first name was Robert, but anyway, it was Dr. Sachs.
[00:16:18]

Tacey Ann Rosolowski, PhD
[00:16:17]
Yeah, yeah, that's neat. Let me ask you, are you a visual thinker? Do you visualize problems in kind of spatial terms?
[00:16:27]

Marvin L. Meistrich, PhD
[00:16:29]
I'll tell you now, I think I think best on Excel sheets.
[00:16:32]

Tacey Ann Rosolowski, PhD
[00:16:33]
Oh, interesting.
[00:16:34]

Marvin L. Meistrich, PhD
[00:16:35]
I put things onto an Excel sheet, and it has to be formatted nicely so you could see it, but seeing the numbers and you can move columns around, you can compare this column of numbers to that column of numbers.
[00:16:55]

Tacey Ann Rosolowski, PhD
[00:16:57]
Is it kind of pattern recognition?
[00:17:00]

Marvin L. Meistrich, PhD
[00:16:00]
Yeah. I always get annoyed when people present their data to ten decimal places, where it's really 1.3. I don't care what's after that. And it's recognizing there are ones in this column, twos in that column, they might be difference.
[00:17:18]

Tacey Ann Rosolowski, PhD
[00:17:20]
Neat, okay, yeah.
[00:17:22]

Marvin L. Meistrich, PhD
[00:17:24]
Or that column has ones and threes and fives, like had a lot of variation in the data. So yeah, to me things have to be done on paper or on the screen.
[00:17:42]

Interview Session: 01
Interview Date: April 11, 2017

Chapter 02
Exploring Physics Major in College and Early Graduate School
A: Educational Path;

Codes
A: Character, Values, Beliefs, Talents;
A: Personal Background;

Tacey Ann Rosolowski, PhD
[00:17:45]
Tell me how things evolved, you know when you started planning on college and kind of getting a firmer idea about that.
[00:17:54]
l
Marvin L. Meistrich, PhD
[00:17:57]
Again, I never really had given much thought to well, where am I going to be twenty years from now, but I just followed the next step.
[00:18:13]

Tacey Ann Rosolowski, PhD
[00:18:15]
Was it ever a question in your family, that you could go to college?
[00:18:18]
l
Marvin L. Meistrich, PhD
[00:18:19]
No, no. Obviously, as the first one, my father, actually because he had to go to work, didn't actually finish high school, but he got -- he went at night to get an equivalency degree. I think only one of my uncles, aunts or uncles, went to college. I say uncle because at that time, in that setting, in the generation before me, very few women went to college.
[00:19:01]

Tacey Ann Rosolowski, PhD
[00:19:00]
Yeah, yeah, of course, yeah.
[00:19:05]

Marvin L. Meistrich, PhD
[00:19:06]
So then, time to plan for college, and I had my heart set on going to MIT, but I didn't get in. I

could say my career was successful, because I kept advancing and getting turned down by MIT. I applied after graduate school, I didn't get in. I had an interview there as a postdoctoral fellow, I didn't get in. I had an interview there as a faculty member and I didn't get the job.
[00:19:40]

Tacey Ann Rosolowski, PhD
[00:19:40]
That is strange.
[00:19:42]

Marvin L. Meistrich, PhD
[00:19:43]
But I was at each level, where I was qualified to be interviewed.
[00:19:49]

Tacey Ann Rosolowski, PhD
[00:19:49]
That's so funny, so that is a funny moral, you advance by not getting in. As you look back on those, you know kind of points, do you know why you were turned down at the time?
[00:20:02]

Marvin L. Meistrich, PhD
[00:20:03]
I'm sure, at my level in high school, I probably came across as a total nerd on an interview. Like I didn't have any other interests outside of science, and I think that hurt me on college interviews.
[00:20:24]

Tacey Ann Rosolowski, PhD
[00:20:24]
Now was that true?
[00:20:25]

Marvin L. Meistrich, PhD
[00:20:27]
Probably.
[00:20:28]

Tacey Ann Rosolowski, PhD
[00:20:29]
Okay, so you were really, really focused on school, that was your thing.
[00:20:33]

Marvin L. Meistrich, PhD
[00:20:33]
Yeah.
[00:20:33]

Tacey Ann Rosolowski, PhD
[00:20:34]
Yeah, okay. So you ended up going to RPI.
[00:20:40]

Marvin L. Meistrich, PhD
[00:20:40]
RPI [Rensselaer Polytechnic Institute, Troy, New York; BS 1962], yeah.
[00:20:41]

Tacey Ann Rosolowski, PhD
[00:20:41]
Yeah, right.
[00:20:42]

Marvin L. Meistrich, PhD
[00:20:42]
So that, that was my second choice. I got into a couple schools in New York City; Brooklyn Polytechnic and one other but yeah, RPI was my second choice, and I wanted to leave home.
[00:21:00]

Tacey Ann Rosolowski, PhD
[00:21:02]
And were your parents okay with that?
[00:21:03]

Marvin L. Meistrich, PhD
[00:21:03]
Yeah. It will cost more money.
[00:21:05]

Tacey Ann Rosolowski, PhD
[00:21:05]
Oh, right.
[01:00:00]

Marvin L. Meistrich, PhD
[00:21:06]
Well, okay, but their first choice would be to stay.
[00:21:12]

Tacey Ann Rosolowski, PhD
[00:21:12]
To stay at home, yeah, okay. Well, Troy is not that far away.
[00:21:16]

Marvin L. Meistrich, PhD
[00:21:16]
No.
[00:21:17]

Tacey Ann Rosolowski, PhD
[00:21:17]
Yeah, right. So tell me about the education there.
[00:21:21]

Marvin L. Meistrich, PhD
[00:21:22]
Well, coming from Brooklyn Tech, I really had a leg up on most of the other kids.
[00:21:29]

Tacey Ann Rosolowski, PhD
[00:21:29]
Really? Wow.
[00:21:29]

Marvin L. Meistrich, PhD
[00:21:30]
Mm-hmm. So, I'd say I breezed through my freshman year.
[00:21:35]

Tacey Ann Rosolowski, PhD
[00:21:35]
Wow. Now also, it would have -- would it have still been the case at this time, that there would -- it's probably a little late for people on the GI Bill, or were there still older students on the GI

Bill?
[00:21:52]

Marvin L. Meistrich, PhD
[00:21:52]
Probably.
[00:21:52]

Tacey Ann Rosolowski, PhD
[00:21:53]
Yeah. I was curious, because I know my dad went there, both for undergrad and graduate, and he said that the quality of the education was very different, because of classmates who were on the GI Bill, just older people, you know, kind of more confident and all of that.
[00:22:08]

Marvin L. Meistrich, PhD
[00:22:09]
Yeah. There certainly weren't, -- there weren't any significant number of older people.
[00:22:15]

Tacey Ann Rosolowski, PhD
[00:22:15]
Okay, yeah, yeah, by that time, because you got your degree in 1962, so it's a little kind of past that curve. So how did your interests start to focus themselves? Freshman year was a breeze. What about sophomore year?
[00:22:32]

Marvin L. Meistrich, PhD
[00:22:34]
Oh, my grades went down, because I came with a good background, good education and good training and studying, and I just, I loved college. I loved getting away from home, partying, enjoying the fraternity. In the dorm, we played a lot of bridge, which is now one of my passions.
[00:23:11]

Tacey Ann Rosolowski, PhD
[00:23:11]
Oh, okay. So you had a real -- your sort of social world expanded.
[00:23:14]

Marvin L. Meistrich, PhD
[00:23:14]
Oh yeah, yeah. In high school, going to an all school high school, and RPI wasn't much better. There were nine girls in the freshman class of a thousand.
[00:23:27]

Tacey Ann Rosolowski, PhD
[00:23:27]
Wow. Wow.
[00:23:29]

Marvin L. Meistrich, PhD
[00:23:33]
But in high school, I didn't date at all, and so I started being social in college, and kind of learning all about that.
[00:23:45]

Tacey Ann Rosolowski, PhD
[00:23:45]
Yeah. What fraternity did you belong to?
[00:23:47]

Marvin L. Meistrich, PhD
[00:23:46]
Pi Lambda Phi, which I thought was a good social experience because in many campuses, Pi Lambda is a totally Jewish fraternity, but on our campus it was about half and half. So, Jewish kids who came from similar backgrounds, as well as other kids, which I think was a great experience.
[00:24:03]

Tacey Ann Rosolowski, PhD
[00:24:12]
Yeah, college can be a great immersion. Yeah, very cool. So tell me, so you have all this social stuff going on and had to buckle down more in sophomore year.
[00:24:25]

Marvin L. Meistrich, PhD
[00:24:25]
Yeah, well in junior year or sophomore year.
[00:24:27]

Tacey Ann Rosolowski, PhD
[00:24:28]
So how were things evolving?
[00:24:30]

Marvin L. Meistrich, PhD
[00:24:30]
Yeah, so I became a statistics major, then I don't know, for some reason I switched to being a math major. Oh, and the other thing that I really learned in high school and college and even into graduate school, is mechanical stuff. In high school, at Brooklyn Tech, we had like four years of machine shop and woodshop and foundry shop, and I really learned how to make things and to be handy, and that's been handy in the lab. We used to go out and then in college and graduate school, we'd go down to the machine shop to make things, and here they have a machine shop.
[00:25:28]

Tacey Ann Rosolowski, PhD
[00:25:28]
And why is that significant in your field?
[00:25:30]

Marvin L. Meistrich, PhD
[00:25:32]
Well it's changed since when I started. You know, now everything is packaged and you have no idea what's inside that, but when you had an adding machine that went clunk, clunk, clunk, sometimes you could say, Well, that's loose and I could tighten that. So it was more important than in the earlier days. Now, everything is prepackaged and you don't know what's in there.
[00:26:00]

Tacey Ann Rosolowski, PhD
[00:26:00]
I've talked to a lot of people who have innovated equipment, and it was really important to have those basic skills.
[00:26:06]

Marvin L. Meistrich, PhD
[00:26:06]
Yeah, and even now, going down to the machine shop, I know how to draw things that could make it.
[00:26:12]

Tacey Ann Rosolowski, PhD
[00:26:12]
Right, right, communicate with people who actually do the making.
[00:26:15]

Marvin L. Meistrich, PhD
[00:26:15]
Yeah.
[00:26:16]

Tacey Ann Rosolowski, PhD
[00:26:16]
Yeah, yeah, cool.
[00:26:17]

Marvin L. Meistrich, PhD
[00:26:18]
In graduate school, we built -- I mean, let's say the physical structures on which our equipment was on. Yeah, some chambers and some things, even here, I had built in the machine shop.
[00:26:40]

Tacey Ann Rosolowski, PhD
[00:26:41]
Neat, yeah. So that's a real important addition.
[00:26:45]

Marvin L. Meistrich, PhD
[00:26:45]
Yeah. And that was true through high school. Certainly in high school, we had a lot of machine shop, and I'm just trying to remember as an undergraduate, whether we did. I don't remember much of that in physics lab, but certainly in graduate school, there was a machine shop which we could have things built or made things ourselves.
[00:27:10]

Tacey Ann Rosolowski, PhD
[00:27:11]
Why did you switch to math?
[00:27:13]

Marvin L. Meistrich, PhD
[00:27:16]
I'm really trying to remember and I think it was just some social reason, or someone was teasing me about physics. Yeah, I would say it kind of was more social than academic.
[00:27:48]

Tacey Ann Rosolowski, PhD
[00:27:48]
Interesting, yeah.
[00:27:49]

Marvin L. Meistrich, PhD
[00:27:49]
I liked math and then I encountered one course, mathematical, it's called mathematical analysis, in which you don't really solve any problems, but you prove whether a solution exists. That was analysis, you know, and I thought well, I want to know the answer, and then I went back to physics.
[00:28:21]

Tacey Ann Rosolowski, PhD
[00:28:22]
Okay, oh interesting. So you were not really into the pure speculative.
[00:28:25]

Marvin L. Meistrich, PhD
[00:28:26]
Yeah.
[00:28:26]

Tacey Ann Rosolowski, PhD
[00:28:27]
Yeah. You wanted the real world.
[00:28:28]

Marvin L. Meistrich, PhD
[00:28:28]
I wanted the answer, yeah, and that happened to me in graduate school, where I took -- actually a group of us in physics took a course in integral equations, in the math department, and again, they didn't solve it but the whole course was to prove that a solution exists. That was just one course for us, in physics. So anyway, did well in college.
[00:29:07]

Tacey Ann Rosolowski, PhD
[00:29:09]
Did it help refine your sense of what you wanted to do, or still kind of searching within the field?
[00:29:15]

Marvin L. Meistrich, PhD
[00:29:20]
Well, I knew I wanted to do physics. I didn't know quite what I wanted to do in physics and I think during that, I was at some family affair, a wedding or something, and I remember a couple of uncles cornering me and saying, "Marvin, you're really smart. You've got a good head on your shoulders, you should go into business." I thought this was just so foreign to me. I was totally committed to science at that time. Again, I really didn't know where it would lead. The people that I saw were professors and gee, I thought that's, that's a good life. Yeah, I guess as an undergraduate, most of the professors were just teaching professors. A couple of them had research projects going.
[00:30:27]

Tacey Ann Rosolowski, PhD
[00:30:31]
Did you apply to graduate school right away?
[00:30:34]

Marvin L. Meistrich, PhD
[00:30:34]
Yeah. I went immediately.
[00:30:36]

Tacey Ann Rosolowski, PhD
[00:30:38]
And you applied to MIT.
[00:30:40]

Marvin L. Meistrich, PhD
[00:30:40]
Oh, sure. (both laugh) Yeah.
[01:00:00]

Tacey Ann Rosolowski, PhD
[00:30:45]

And ended up at Cornell.
[00:30:47]

Marvin L. Meistrich, PhD
[00:30:47]
At Cornell, yeah. And at that time, well, I was leaning towards towards solid state physics, at that time nuclear physics. Well, we acquired these big accelerators and looking inside the nucleus and kind of the more fundamental forces. I guess I felt I wasn't smart enough with the math analysis course to become a theoretician, and by that time, I was pretty handy and getting handy in the lab, although my senior year, I kind of had a lab research experience. I had some basic tuning in the lab and no supervision, and I didn't accomplish much. That was a little frustrating. Anyway, I decided to go into experimental and probably solid state physics. So let's see, I think -- I'm just trying to remember what schools I was thinking of. But anyway, I got into Cornell. At first, I didn't get an assistantship in physics, I got one in engineering physics, and so I took that, it's pretty close to physics. And then, I know I was wrong and I thought well physics is more pure than engineering physics. And I did go back to a lab, some physics department, which was in the same building actually. In that, I thought well, you know, engineering is kind of a lower level and more practical. Since then, my opinions have changed.
[00:33:05]

Tacey Ann Rosolowski, PhD
[00:33:07]
I remember hearing exactly those ideas, you know, that kind of how you hierarchize the different sciences and specialties. Yeah, it kind of was part of the culture of academia at the time.
[00:33:20]

Marvin L. Meistrich, PhD
[00:33:21]
Yeah, I would have been very happy in engineering physics, but I was happy in physics too.
[00:33:26]

Tacey Ann Rosolowski, PhD
[00:33:27]
So you had a research project at the time?
[00:33:30]

Marvin L. Meistrich, PhD
[00:33:32]
My freshman year, I was in one project in junior year physics, and felt I did okay in the labs but you're taking heavy coursework the first two years. Yeah, and I did okay in my coursework. It was hard. And then I got into a lab and physics department, doing nuclear magnetic resonance

and electron spin resonance. And this is kind of -- I mention that, because that kind of leads up to a place where I could have done something really great and missed the boat. This was before magnetic resonance imaging evolved, and here I was a physicist, learning the basics of those techniques.

Interview Session: 01
Interview Date: April 11, 2017

Chapter 03
A Diagnosis and a Changing Career Focus
A: The Patient;

Codes
A: The Patient;
A: The Researcher;
A: Personal Background;
A: Professional Path;
A: Inspirations to Practice Science/Medicine;
A: Influences from People and Life Experiences;
A: Experiences Related to Gender, Race, Ethnicity;
C: Formative Experiences;
C: Evolution of Career;

Marvin L. Meistrich, PhD
[00:34:33]
So then, a personal medical problem. Actually at that time, I was getting a little disenchanted with solid state physics and I think the project I was on, I didn't see practical importance. To see something, you had to take things down below, down to liquid helium temperatures. I think I would have been happy in solid state physics if it had a more practical problem, because now you know, everything -- this kind of looks fairly old fashioned but you know, any of the devices we have are based on solid state physics. But what I was doing, I didn't see the future, so I started looking around. I talked to people in geophysics and biophysics and astrophysics, and then in I guess January, 1965, I had a lump removed from my buttock. It was just really not in the lymph node or a fatty tissue, and I didn't think it was anything, had it removed in the infirmary. A couple weeks later, they called me and they say, Oh, that was a reticulum cell sarcoma.
[00:36:37]

Tacey Ann Rosolowski, PhD
[00:36:37]
Oh my gosh.
[00:36:38]

Marvin L. Meistrich, PhD
[00:36:40]
Which is the old terminology for non-Hodgkin's lymphoma.
[00:36:44]

Tacey Ann Rosolowski, PhD
[00:36:45]
Wow.
[00:36:45]

Marvin L. Meistrich, PhD
[00:36:46]
And so this, the biopsy was sent to the Thompkins County Hospital and then it was also sent to -- I don't know if at that time it was sent to Cornell Medical Center in New York, but anyway, they confirmed that it Cornell Medical Center. So I looked at the survival curve for these. So say [sketching a graph with his hands] that's one and that's 0.2. And say this is years, one, two.
[00:37:36]

Tacey Ann Rosolowski, PhD
[00:37:38]
Oh my gosh.
[00:37:38]

Marvin L. Meistrich, PhD
[00:37:38]
Something like that, and then flat.
[00:37:42]

Tacey Ann Rosolowski, PhD
[00:37:42]
Yeah. This is like very serious, a seriously not very good prognosis.
[00:37:48]

Marvin L. Meistrich, PhD
[00:37:48]
Yeah. This flat thing, well I'll get to that later, that's a new story. So I went down there, you know, got that. The next day, my wife and I set out -- married to my first wife at the time. We went down to New York. Of course, both our families were, I'd say it was -- yeah. Neither of our parents had moved to Miami yet.
[00:38:27]

Tacey Ann Rosolowski, PhD
[00:38:29]
Your wife's name, your first wife's name?
[00:38:30]

Marvin L. Meistrich, PhD
[00:38:31]
Barbara, and my current wife is Helen.
[00:38:34]

Tacey Ann Rosolowski, PhD
[00:38:34]
Okay. Thanks.
[00:38:40]

Marvin L. Meistrich, PhD
[00:38:42]
Anyway, we went down to New York Hospital, Cornell Medical Center, and went through all sorts of tests. I was very depressed. They wheeled me into grand rounds to discuss the case.
[00:39:05]

Tacey Ann Rosolowski, PhD
[00:39:05]
Oh, god.
[00:39:06]

Marvin L. Meistrich, PhD
[00:39:08]
This was before chemotherapy, which is probably what they would have done now. My hematologist said some people were thinking of amputating from the hip down.
[00:39:27]

Tacey Ann Rosolowski, PhD
[00:39:27]
Oh my god.
[00:39:28]

Marvin L. Meistrich, PhD
[00:39:28]
But anyway, they decided on local radiotherapy, so a square of about that much.
[00:39:35]

Tacey Ann Rosolowski, PhD
[00:39:35]
So about four and a half by four and a half (inches), five-by-five.
[00:39:38]

Marvin L. Meistrich, PhD
[00:39:38]
Yeah. In my buttock. And I asked, Well, some of the radiation is going to go to my testicles, is that a problem, and they said we don't really know, we'll try to avoid your testicles. And I don't remember any special shielding over my testicles.
[00:40:03]

Tacey Ann Rosolowski, PhD
[00:40:03]
Oh my god.
[00:40:04]

Marvin L. Meistrich, PhD
[00:40:05]
But it was in the back, it wasn't right towards the testicles. So, that was another four weeks. Anyway, I really debated whether to go back to graduate school.
[00:40:22]

Tacey Ann Rosolowski, PhD
[00:40:22]
I can imagine.
[00:40:23]

Marvin L. Meistrich, PhD
[00:40:24]
Just get in the car and drive. At that time, I wasn't happy in my marriage, even though it lasted ten years. I guess I went back, because that's what was expected of me, and everybody there gave me a wonderful surprise party when I got back. I went back to work in the solid state physics lab. Anyway, that tipped the balance in what direction I wanted to go into, and it would be biophysics, with this diagnosis of cancer lurking over me. So I did take some -- I ordered a biochemistry course, I took biophysical -- there was a professor doing research in photosynthesis, and that involved a lot of biophysics, light absorption, so I actually took that for credit and you know, got more interested in that. So then, so that was the cancer incident was spring of '65.
[00:42:09]

Tacey Ann Rosolowski, PhD
[00:42:11]
What support did they give you for coming out of that? I mean obviously, you had an amazing

result, you're still with us after all this time, so something must have gone right.
[00:42:25]

Marvin L. Meistrich, PhD
[00:42:25]
Oh well, that's later in the story.
[00:42:26]

Tacey Ann Rosolowski, PhD
[00:42:27]
Okay, yeah, yeah. But I mean, as you look back, were you happy with the state of the care of the time, that you were given, and you felt that you were -- what was your perspective on that?
[00:42:37]

Marvin L. Meistrich, PhD
[00:42:37]
Looking back, there was no psychosocial care.
[00:42:42]

Tacey Ann Rosolowski, PhD
[00:42:43]
Yeah, yeah, because you were a young man.
[00:42:45]

Marvin L. Meistrich, PhD
[00:42:45]
Yeah. There was really no, you know, specific psychosocial care. You know, how do you feel about the chance of dying? People, at that time, were left to do it in their own.
[00:43:06]

Tacey Ann Rosolowski, PhD
[00:43:06]
Right, yeah, yeah.
[00:43:08]

Marvin L. Meistrich, PhD
[00:43:09]
And each year, when I got checked up, "*whew*," nothing.
[00:43:12]

Tacey Ann Rosolowski, PhD
[00:43:13]
Right, right.
[00:43:13]

Marvin L. Meistrich, PhD
[00:43:14]
And so I guess now, I'm kind of out around two years. I don't know exactly how this cartwheeled but anyway, forward.
[00:43:22]

Tacey Ann Rosolowski, PhD
[00:43:23]
Yeah, sure.
[00:43:24]

Interview Session: 01
Interview Date: April 11, 2017

Chapter 04
Postdoctoral Study in Biophysics
A: Educational Path;

Codes
A: The Researcher;
A: Personal Background;
A: Professional Path;
A: Inspirations to Practice Science/Medicine;
A: Influences from People and Life Experiences;
C: Evolution of Career;

Marvin L. Meistrich, PhD
[00:43:25]
So, I went to do time for a postdoc. I'm up to biophysics. At that time, a lot of the guys in solid state physics, the prized place to get a postdoc was Bell Telephone Labs. I know three of my predecessors who were here, had grad school, went there, and of course they came to interview and I said I wanted to do biophysics; yeah but we have a biophysics group. These were all former pure physicists who got interested in biological problems. So, among other things, they had just gotten a new superconducting magnet to do nuclear magnetic resonance studies on proteins. I thought, Wow that's kind of in my area, and so I interviewed, got the job. When I went down for the interview, I interviewed with the head of the department, Bob Shulman, and he's a great salesman. He had just gotten back from a sabbatical in Cambridge, with Francis Crick's lab, Francis Crick and Sydney Brenner. They were looking at mutations in bacteriophage, and of course before that, it was the farthest from my mind. I thought I was going to do nuclear magnetic resonance. They got me really excited about it. I got the original book, Watson's, *Molecular Biology of the Gene*. So this is 1967, so ten years after Watson-Crick, and really, still, the genetic code was 90 percent worked out but it was still pretty new. Anyway, I got really excited about that.

[00:46:07]
I took the summer off, and my wife and I drove around the country and Mexico. So, in September, came back and Bob said, Well, you know, there are a bunch of new postdocs coming in that I was going to work with, this other guy Terry Eisinger. He was a good guy, doing optical studies on DNA. I thought, Oh that's interesting but not what he got me excited about previously, and not the new, super duper, high resolution magnetic resonance that they got. So I kind of started but I told them I was very unhappy, because he got me excited about this bacteriophage project, which knew nothing about and really hardly anyone there knew much about. One guy, who was a very good chemist, Angelo Lamola, had developed a technique of putting a specific form of damage into DNA, using energy transfer in excited states, which is something, gee, I remember that from physics. They thought they came up with a way of putting

it into the bacteriophage. So anyway, I got back on that project. Meanwhile, you know, on the nuclear magnetic resonance, they were spending millions of dollars on equipment. I had to beg to get just the technician to do autoclaving of bacterial plates for me.
[00:48:00]

Tacey Ann Rosolowski, PhD
[00:47:59]
Oh my god, yeah, right.
[00:48:00]

Marvin L. Meistrich, PhD
[00:48:00]
But I got one and a very primitive autoclave, and we did the project and so I was looking at the mutation spectrum. If you only put thymine dimers into DNA, not the whole spectrum of dimers that you get with ultraviolet light. So I was getting into genetics and I thought that Bell Labs wasn't the place really, to do that. I did get into radiation, UV radiation genetics. So, two years were up and it's 1969. It looks like you reused paper, just like I reuse paper.
[00:48:54]

Tacey Ann Rosolowski, PhD
[00:48:52]
I did. (both laugh) I'm glad you're not offended.
[00:48:58]

Marvin L. Meistrich, PhD
[00:48:59]
No.
[00:49:00]

Tacey Ann Rosolowski, PhD
[00:49:01]
There you go. Yeah, there's so much wasted paper. For the record, Dr. Meistrich is commenting on my notetaking on the back of used paper. (laughs)
[00:49:15]

Marvin L. Meistrich, PhD
[00:49:15]
I'm showing, I'm showing my part. Yeah, my notes on the back.
[00:49:18]
Tacey Ann Rosolowski, PhD
[00:49:16]

And his own. Sometimes I kind of get into reading what's on the back.
[00:49:22]

Marvin L. Meistrich, PhD
[00:49:22]
Yeah. That was interesting at one time.
[00:49:25]

Tacey Ann Rosolowski, PhD
[00:49:26]
Yeah it was, exactly.
[00:49:27]

Marvin L. Meistrich, PhD
[00:49:30]
So, looking for another postdoc. I figured I probably wasn't ready for a faculty position in a new area and I thought well, gee I want to get into mammalian side stuff. Actually, I was approached by, -- I guess presented this in a meeting, and the head of the Medical Biophysics Department at the Ontario Cancer Institute. They said, Gee, we'd be interested in if you were interested in a position. I said , Yeah. Actually, I didn't think too much of his work, even though it was kind of related to what I was doing, and I said, Well, I wanted to get more into medicine. Oh, we've got one of our professors is just, -- well, one of the other faculty members had developed a technique, very simple, it's layered on top of a (inaudible) and let the cells settle for four hours, and they settle in nice layers of separating blood cells. And the guy I went to work for, Paul Bruce, was developing it for testes cells. I said okay, good, one thing that be with physicists is we're all ex-physicists, more of the medical physics type that's involved in radiotherapy, radiation oncology department, and doing mammalian biology, and the Ontario Cancer Institute is the top cancer institute in Canada, that they had developed identifying hematopoietic stem cells, mouse transplantation. So good. I went up there, it was a two-year position, a research associate you know, kind of event, postdoc.
[00:51:45]

Tacey Ann Rosolowski, PhD
[00:51:45]
So this is 1969 to 1972. Yeah.
[00:51:48]

Marvin L. Meistrich, PhD
[00:51:47]
Seventy-two. I loved Toronto. Of course, I said, Well, a cancer institute, someone there will follow my case and actually, nothing particularly changed. You know, kind of looked at -- they

never actually sampled the size, but they studied the case and followed me up, you know, just every six months, with maybe an angiogram or just how pain lymph nodes and stuff.
[00:52:41]

Tacey Ann Rosolowski, PhD
[00:52:42]
So obviously, you were still concerned, there was a clock ticking, and wanted somebody to kind of manage things.
[00:52:50]

Interview Session: 01
Interview Date: April 11, 2017

Chapter 05
Early Research on Spermatogenesis
A: The Researcher;

Codes
A: The Researcher;
A: Definitions, Explanations, Translations;
A: Overview;
C: Discovery and Success;
A: Joining MD Anderson;
A: Overview;
A: Definitions, Explanations, Translations;

Marvin L. Meistrich, PhD
[00:52:50]
Yeah. The science that was excellent. I really enjoyed getting into the basics of the system of spermatogenesis, and I like it. It was a very precise system.
[00:52:07]

Tacey Ann Rosolowski, PhD
[00:52:07]
Now, I'm sorry, I'm not sure I'm understanding that term.
[00:52:10]

Marvin L. Meistrich, PhD
[00:53:11]
Spermatogenesis.
[00:53:12]

Tacey Ann Rosolowski, PhD
[00:53:11]
Spermatogenesis, okay, missed the first bit.
[00:53:14]

Marvin L. Meistrich, PhD
[00:53:14]
Yeah, yeah, the formation of sperm cells. I mean, it's so precise, when the cell starts off, to differentiate, to become a sperm in a mouse and 30 days later, becomes a sperm. It takes 30 days plus or minus 0.4 days, so like one cell goes faster and one cell goes slower. I like the precision in that, so I got interested in that system and biophysical methods of separating a cell, based on

size and density, again, using some physics background.
[00:54:03]

Tacey Ann Rosolowski, PhD
[00:54:04]
And I just wanted to know, it's -- I started college in '73 and you know, it's really hard to believe that just a few years before that, there was so little that was known. I mean, you were really in, on sort of the formation of an entirely new field and it's kind of hard to remember that, or it's important not to forget that.
[00:54:33]

Marvin L. Meistrich, PhD
[00:54:36]
And it's working with DNA. DNA hadn't been discovered for ten years previously.
[00:54:41]

Tacey Ann Rosolowski, PhD
[00:54:41]
Yeah. It's just kind of staggering, the speed also with which discoveries were being made. So you're looking at spermatogenesis. This was really the first time anybody had looked at that?
[00:54:54]

Marvin L. Meistrich, PhD
[00:54:55]
No.
[00:54:54]

Tacey Ann Rosolowski, PhD
[00:54:55]
Who else?
[00:54:56]

Marvin L. Meistrich, PhD
[00:54:55]
Actually, one of the leaders in the area, who actually just passed away two years ago, Dr. Yves Clermont, Y-V-E-S, Clermont, in McGill University in Montreal. I don't have the diagram handy, but in my old office, they used to have it up on the wall, the associations of cells in different stages. He really categorized that probably in the late '50s or early '60s. So, you know, we were first separating the cells and trying to look at the biochemical aspects of it, because as an analyst, Clermont could just do more problems.
[00:56:10]

Tacey Ann Rosolowski, PhD
[00:56:12]
Now at this point, the kind of research question you were asking was more or --
[00:56:18]

Marvin L. Meistrich, PhD
[00:56:17]
It was a technique, looking for a question.
[00:56:20]

Tacey Ann Rosolowski, PhD
[00:56:20]
Yeah, yeah, exactly. So you were kind of very scientific fishing trip.
[00:56:26]

Marvin L. Meistrich, PhD
[00:56:27]
Yeah. I was not applying for grants that I could fish.
[00:56:32]

Tacey Ann Rosolowski, PhD
[00:56:30]
Yeah, yeah. Well I mean that was -- this was kind of the era when a lot of that work was being done. It was like what is the territory.
[00:56:37]

Marvin L. Meistrich, PhD
[00:56:38]
Yeah. And what are important questions to answer with this technique.
[00:56:43]

Tacey Ann Rosolowski, PhD
[00:56:46]
So the technique was enabling you to separate cells at different stages of development.
[00:56:53]

Marvin L. Meistrich, PhD
[00:56:52]
Stages, yeah. In fact, let me print out some of those diagrams.
[00:56:57]

Tacey Ann Rosolowski, PhD
[00:56:57]
Great. Yeah, cool. Also, I wanted to let you know, if there's any supplementary material you want to provide me with, I can append it to your interview or even put images into your transcript and everything.
[00:57:15]

Marvin L. Meistrich, PhD
[00:57:15]
Okay.
[00:57:17]

Tacey Ann Rosolowski, PhD
[00:57:18]
You can even send me just a PDF, so I get a higher resolution image. I'll just pause this for a second.

[The recorder is paused.]

Okay, so we're back with the images.
[00:58:25]

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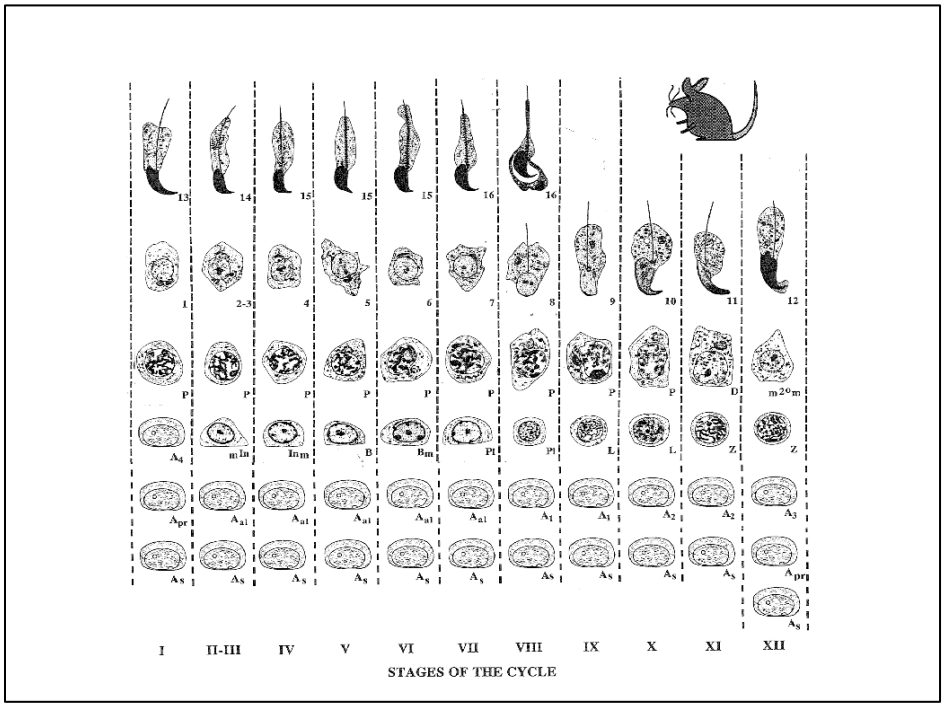

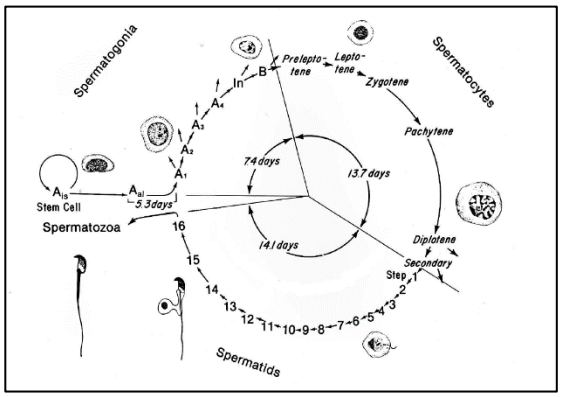

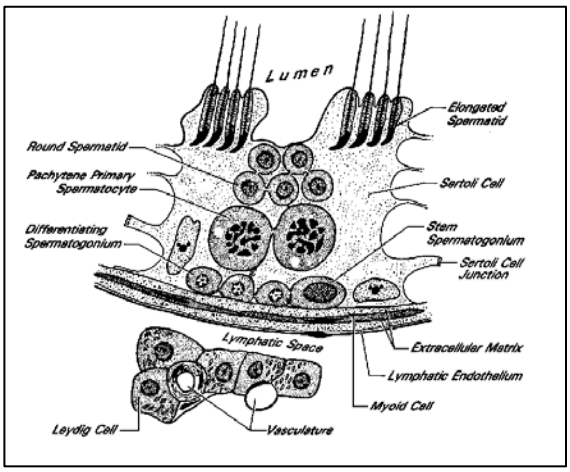

Marvin L. Meistrich, PhD
[00:58:26]
Yeah. So this kind of accepted --the bottom line is it's somebody's else's diagram. But based on what Clermont did, saying that when you look at a section, you will always find these cells in association, and then that one matures and that one matures, and they stay the same.
[00:58:50]

Tacey Ann Rosolowski, PhD
[00:58:48]
Interesting.
[00:58:49]

Marvin L. Meistrich, PhD
[00:58:51]
So you go from a stem cell to a sperm. This is the way it would look in a two-view; stem cells are here and the sperm there. If you're looking at the time, it takes about 30 or 45 days for a stem cell to become a sperm in the mouse.
[00:59:10]

Tacey Ann Rosolowski, PhD
[00:59:10]
Oh, amazing.
[00:59:11]

Marvin L. Meistrich, PhD
[00:59:12]
So we were able to separate spermatocytes and spermatids and late spermatids, and begin to do some biochemistry on them.
[00:59:21]

Tacey Ann Rosolowski, PhD
[00:59:22]
And what were you looking at with the biochemistry?
[00:59:23]

Marvin L. Meistrich, PhD
[00:59:24]
Well, I'm just trying to think what are -- I published -- I don't think I published any of the biochemical stuff when I was in Toronto.
[00:59:34]

Tacey Ann Rosolowski, PhD
[00:59:23]
I have your first publication related to cancer, in 1969, so it may have been right after you left?
[00:59:42]

Marvin L. Meistrich, PhD
[00:59:45]
Which paper was that?
[00:59:46]

Tacey Ann Rosolowski, PhD
[00:59:47]
Oh, gosh, I just, I had it on your CV. I didn't take the titles.
[00:59:51]

Marvin L. Meistrich, PhD
[00:59:51]
Okay, '69.
[00:59:52]

Tacey Ann Rosolowski, PhD
[00:59:52]
And then '72, the first publication on sperm cells.
[00:59:55]

Marvin L. Meistrich, PhD
[00:59:56]
Yeah. Probably that first paper, I don't know it might have been from the bacteriophage research. I don't see why it would be cancer. But anyway…
[01:00:14]

Tacey Ann Rosolowski, PhD
[01:00:16]
Maybe I took that down wrong, so I'll go back and check.
[01:00:20]

Marvin L. Meistrich, PhD
[01:00:20]
Okay. I don't know but anyway, we were separating different cells, and I think I did some preliminary work on the biochemistry in Toronto, but most of that stuff was after I came here.
[01:00:51]

Tacey Ann Rosolowski, PhD
[01:00:51]
Okay. I just was curious, what were the first questions about biochemistry you were asking?
[01:00:58]

Marvin L. Meistrich, PhD
[01:00:58]
Okay, so what I was interested in for many years was the change, the nuclear changes, the proteins. All somatic cells have histones and sperm have protamines, to compact it, because it has to survive outside the tissue. Actually, what we discovered here is that the histones were first replaced by proteins called transition nucleoproteins, and then those were replaced by the proteins, and that was -- someone had identified transition protein one, called testis protein one, but by separating the cells, we were able to localize it into these cells after the histones fall off, before the protamines come on, and we discovered another transition protein. That was in about '74, after I came here.
[01:02:12]

Tacey Ann Rosolowski, PhD
[01:02:13]
And so the significance of these transition proteins, is they're kind of paving the way for the process?
[01:02:21]

Marvin L. Meistrich, PhD
[01:02:22]
Yes. And then in the '90s, we made knockouts, or about 2000, we made knockouts of those transition proteins.
[01:02:30]

Tacey Ann Rosolowski, PhD
[01:02:30]
And what does that mean?
[01:02:31]

Marvin L. Meistrich, PhD
[01:02:32]
So, mice that don't have them, and what happens, and it depends. Actually, if you knock out one of them, the mice are still fertile but sub-fertile. If you knock out both of them, and it depends whether it's a heterozygote or homozygote, because the mouse could have one copy of it, and the more you knocked out, the worse it was. And they were completely sterile if you knocked them both out. What we found is that we collaborated with a group in Hawaii who does -- they were the first to develop for the mice IGSI, intracytoplasmic sperm injection, which was actually done in humans first, which is odd.
[01:03:23]

Tacey Ann Rosolowski, PhD
[01:03:24]
That is odd.
[01:03:24]

Marvin L. Meistrich, PhD
[01:03:26]
I don't think they meant to do it but now, probably I think particularly in European countries, probably five to ten babies are born from intracytoplasmic sperm injection.
[01:03:41]

Tacey Ann Rosolowski, PhD
[01:03:38]
Really? Wow.
[01:03:42]

Marvin L. Meistrich, PhD
[01:03:42]
When someone goes in for IVF, they wouldn't just pour the sperm on, they'll inject the sperm into an egg.
[01:03:50]

Tacey Ann Rosolowski, PhD
[01:03:50]
Interesting, okay.
[01:03:51]

Marvin L. Meistrich, PhD
[01:03:52]
But anyway, when they took the sperm, when they just came out of the testis, they were actually better at fertilizing than when they went down epididymis vas deferens. A normal sperm would be good form away. During the epididymis transport, they gain motility, but if you're injecting it into an egg, they don't need motility; it's just whether the nucleus is good. But with the knockout of those proteins, the nucleus didn't condense properly and the sperm degraded during the transport. So even with no transition proteins, we could get sperm from the testis and fertilize, but in a normal mating situation, that wouldn't have been any good.
[01:04:43]

Tacey Ann Rosolowski, PhD
[01:04:45]
So you started kind of framing the questions about this process when you were in Toronto.
[01:04:52]

Marvin L. Meistrich, PhD
[01:04:53]
Yeah. We got interested in the protamines and I probably spent about, I'd say from the early '70s, until mid-2000s, working on the nucleoproteins. The importance of the structure of chromatin and fertility. Now something else, -- that was something that we thought about in Toronto and continued. Something else that I tried in Toronto and I didn't get it to work, because the guys that developed the hematopoietic stem cell transplantation, implanting stem cells in mice by transplanting it, to legally radiate mice, which now of course is hematopoietic stem cell transplantation is you know, used clinically on high dose chemotherapy cases. So, well, maybe if we took a testicular cell suspension, injected it back into the -- a testis of a mouse that didn't have stem cells, maybe they would grow. And I looked at hundreds and hundreds of slides and I never saw anything. The mistake I made was that I just injected it into the testis. In 1994, a group at the University of Pennsylvania took those cells and -- the testis is composed of a mass of tubules. They were able to inject it directly into a tubule and it worked.
[01:07:00]

Tacey Ann Rosolowski, PhD
[01:06:59]
Oh, okay yeah, and it worked. Interesting, yeah.
[01:07:09]

Marvin L. Meistrich, PhD
[01:07:11]
Anyway, I was on the verge of it, and now we're using that technique.
[01:07:18]

Tacey Ann Rosolowski, PhD
[01:07:20]
Now you were saying we, when you were talking about the work on this. Does that we include just people at MD Anderson, or were you working with people in Toronto on this as well?
[01:07:33]

Marvin L. Meistrich, PhD
[01:07:34]
Some of the biochemistry, I remember I did stem cell separations and collaborated with people in the biochemistry department, and gave the separated cells to them. This was in Toronto and we

published a couple papers on it. And then here, a lot of the work started out with people in Dr. Lubomir Hnilica's lab, who was in biochemistry at that time.
[01:08:00]

Interview Session: 01
Interview Date: April 11, 2017

Chapter 06
Coming to MD Anderson to Work on Oncofertility
A: Joining MD Anderson/Coming to Texas;

Codes
A: The Researcher;
A: Personal Background;
A: Professional Path;
A: Inspirations to Practice Science/Medicine;
A: Influences from People and Life Experiences;
C: Evolution of Career;
B: MD Anderson Culture;
B: Multi-disciplinary Approaches;
B: Research;

Tacey Ann Rosolowski, PhD
[01:08:00]
Do you want to tell me about how you ended up coming here, to MD Anderson?
[01:08:03]

Marvin L. Meistrich, PhD
[01:08:03]
Oh, okay, yes. Let me go back to one story. I was doing nuclear magnetic resonance in graduate school.
[01:08:23]

Tacey Ann Rosolowski, PhD
[01:08:24]
I'm going to just close the door really quick, because we've got a machine working outside and it's probably going to read on the machine.
[01:08:31]

Marvin L. Meistrich, PhD
[01:08:30]
Oh sure, I forgot to close it when I came back.
[01:08:32]

Tacey Ann Rosolowski, PhD
[01:08:33]
Well, it was so quiet out there, I kind of forgot about it. Okay.
[01:08:37]

Marvin L. Meistrich, PhD
[01:09:12]
There were people starting the basics of magnetic resonance imaging, and I had written to somebody in Scotland. I don't think he eventually was part of the development, but he was working on it. Anyway, there was a professor, who was doing spin resonance, a professor from the University of Wisconsin, spin resonance more for chemical structures, not for imaging.
[01:09:23]

Tacey Ann Rosolowski, PhD
[01:09:24]
And what were you interested in imaging with this technique?
[01:09:29]

Marvin L. Meistrich, PhD
[01:09:29]
Cancer. This is what people were saying; cancer cells had different magnetic resonance image than other cells. Anyway, this professor said, Nah, that's a bunch of crap. Okay, so I didn't do that and went to Bell Labs, but I could have been in a good position, on the ground step of nuclear magnetic resonance imaging, if I went to the right place or did something. So, missed opportunities.
[01:10:13]

Tacey Ann Rosolowski, PhD
[01:10:14]
Yeah, or bad luck, you know? Yeah.
[01:10:16]

Marvin L. Meistrich, PhD
[01:10:17]
Bad luck or bad advice.
[01:10:19]

Tacey Ann Rosolowski, PhD
[01:10:20]
Myopia of an advisor.
[01:10:22]

Marvin L. Meistrich, PhD
[01:10:24]
And when my spiral ganglion stem cell transplant didn't work, reminded me of that is another

missed opportunity. So, coming to MD Anderson. Okay, I figured five years of postdoc research associate, ready for a faculty position. My position ended in September of '72 and it was clear, some of the research associates got promoted to faculty and I wasn't on that track. Actually, I kind of had a bad experience. I felt a lot of pressure from my supervisor. He really pushed people hard. He expected a lot of himself, I mean he wasn't a lazy guy who made you do the work for his glory; he just expected everybody to work hard. I spent a year with kind of chronic fatigue syndrome and I was really just recovering from that when I was… Well, recovering enough for job hunting and went on lots of interview, didn't get the job at MIT. But then I thought well, maybe I didn't want the high -- you know, places like MIT, they hire twenty assistant professors and one of them is going to get tenure. So I figured no, I'm not really up for that and so it was really frustrating from September until April or May, I got nothing.
[01:12:14]

Tacey Ann Rosolowski, PhD
[01:12:16]
That's a long time, that a seriously long time.
[01:12:38]

Marvin L. Meistrich, PhD
[01:12:39]
And then I ended up with five offers. McMaster University in Hamilton, Ontario, but decided against that. It was a faculty position but I would have to apply for something, and the professor at Hamilton said, Oh well, with Bob Bruce behind you, you should have no trouble. I asked Bob, what's the chance of getting that, he said, "Well, we'll create some muster behind you, you should have no trouble getting it." I said nobody'd behind me, the other guys behind me. Okay. And also, there was some -- Canadians were complaining about too many Americans taking their faculty positions at the time; otherwise, I would have liked to stay in Canada. An offer from Johns Hopkins, which was one of the preeminent reproductive biology departments and still is. So, that would have been more focused on reproductive biology. Another one, which this came up for another reasons, Lawrence Livermore Lab, which was doing exciting stuff in flow cytometry, sorting of cells, and also connected with radiation biology and somebody who is interested in sperm cells. So again, biophysics department. And here. I guess the decision came down to my decision and my wife's decision. I probably would have gone to Livermore, she probably would have preferred Baltimore; it had a more established Jewish community, but we both thought Houston had some of both.
[01:15:06]

Tacey Ann Rosolowski, PhD
[01:15:07]
Oh, okay, yeah.
[01:15:08]

Marvin L. Meistrich, PhD
[01:15:08]
What I liked about the position here was the department head, Rod Withers, I mean he was a big reason why I came here.
[01:15:32]

Tacey Ann Rosolowski, PhD
[01:15:32]
What was it that he offered you felt?
[01:15:34]

Marvin L. Meistrich, PhD
[01:15:36]
It was what I heard about him. I got the interview with one of the professors at the Ontario Cancer Institute who knew him very well and said he's looking to hire faculty because he had just taken over the department. Herman Suit, who had been previous department head, went up to Mass General, and Rod had taken over the department and was hiring. They said he's a very creative guy and a very good guy to work for. He's a very casual guy, I mean that's what I found out. He's very good to people, casual, very creative in science, kind of an odd personal life. He was into everything that there was in the '60s and '70s, but we're not going to talk about that on tape.
[01:17:02]

Tacey Ann Rosolowski, PhD
[01:17:03]
That's fine. One thing I would be interested in hearing about is the creativity part. How do you define creativity in science and how did he exemplify that.
[01:17:18]

Marvin L. Meistrich, PhD
[01:17:19]
His interest at that time was stem cells and tissues. He had developed a technique by radiating tissues, say -- he had done it on the skin and in the small intestine, and looking for colonies of regrowth after the radiation. In the intestine, he would harvest the tissue from the mouse four days afterwards and just see one here and there, a crypt re-growing. That's a surviving stem cell. Just putting two and two together, that these were surviving stem cells. So it wasn't a transplantation assay like Till and McCulloch developed in Toronto, in the bone marrow, but it was a regrowth. You kill enough of the stem cells, so you just see colonies re-growing. He was always open to new ideas. He was just fun to be around. I'll say, we had a lot of fun, yeah. He passed away a couple of years ago and even someone who was a former girlfriend of his, and his

widow, was there, who he had divorced and remarried two or three times. His former girlfriend said how much she loved Rod. I think everybody loved Rod.
[01:19:03]

Tacey Ann Rosolowski, PhD
[01:19:03]
Yeah, wow, wow, that's quite a testimony.
[01:19:06]

Marvin L. Meistrich, PhD
[01:19:06]
Yeah. I think the main thing is the love people had for him.
[01:19:10]

Tacey Ann Rosolowski, PhD
[01:19:11]
So it sounds like he was a real important department head at that time, you know really created a good atmosphere.
[01:19:20]

Marvin L. Meistrich, PhD
[01:19:20]
It was the atmosphere. He wasn't one of these department heads who was always fighting for more space or fighting the administration. He was just you know, fighting for the department and making the department fun.
[01:19:35]

Interview Session: 01
Interview Date: April 11, 2017

Chapter 07
Study of Nuclear Proteins in Sperm Cells and on Stem Cells
A: The Researcher;

Codes
A: The Researcher;
B: MD Anderson Culture;
C: Discovery and Success;
B: Research;
A: Overview;
A: Definitions, Explanations, Translations;

Tacey Ann Rosolowski, PhD
[01:19:34]
His people. So you came in 1972 and what did you hope to do?
[01:19:43]

Marvin L. Meistrich, PhD
[01:19:46]
I think he hired me because he was interested in testicular stem cells at that time. He had just developed an assay and his paper was published in 1974, but I saw it in preprint form, radiating the testis and looking for -- let's see. So, this is what a tubule would look like and if you radiate it and if you kill all -- if you kill the stem cell, all of these cells here would pass out of the tubule within five weeks, and you would only be left with these pale Sertoli cells. So he counted tubules in which there was some recovery at five weeks and said that's a measure of stem cell survival, with radiation. I thought you know, -- and I got excited about that and I think some of my first studies were -- I guess I was still more focused on basics of spermatogenesis, so a lot of collaboration with the biochemistry department, people in Hnilica's group.
[01:21:20]

Tacey Ann Rosolowski, PhD
[01:21:22]
I'm sorry, the name again?
[01:21:25]

Marvin L. Meistrich, PhD
[01:21:25]
Lubomir Hnilica. H-N-I-L-I-C-A. It was a Czech name.
[01:21:35]

Tacey Ann Rosolowski, PhD
[01:21:37]
So it sounds like -- I mean, I'm sorry, I'm just kind of asking a side question here. It sounds like there was a pretty collaborative, good atmosphere here amongst the researchers even in different departments in physics and related areas.
[01:21:53]

Marvin L. Meistrich, PhD
[01:21:54]
Yeah, yeah, oh absolutely. It was small and you knew everyone.
[01:21:58]

Tacey Ann Rosolowski, PhD
[01:21:59]
Right, right, of course, a vastly different institution at that time.
[01:22:01]

Marvin L. Meistrich, PhD
[01:22:02]
So I guess I got stranded on basics of spermatogenesis. So when I came here, you know I was kind of probably more interested in spermatogenesis, and I asked Rod well, this is a radiotherapy department. He wasn't even going to have me meet Gilbert Fletcher and I said I'd like to meet him and tell him what I'm doing. It sounds like somewhat of an oddball and I probably have not contributed as much to the department as a whole, more interested in my own research, but as long as I've been successful in obtaining grants, I've gotten good support. Probably not as good support as if I did what everyone else was interested in, but it's been good.
[01:23:08]

Tacey Ann Rosolowski, PhD
[01:23:08]
You made a place for yourself. Why didn't he want you to -- or why was he, didn't it feel it was necessary to meet Gilbert Fletcher?
[01:23:16]

Marvin L. Meistrich, PhD
[01:23:18]
I don't know.
[01:23:23]

Tacey Ann Rosolowski, PhD
[01:23:24]
Just curious.
[01:23:24]

Marvin L. Meistrich, PhD
[01:23:25]
I just said, you know, before I come here, I'd like to meet the division head. No, I don't know if there was an ulterior motive, or he thought Fletcher would say no, I don't want this guy. I don't know. I mean, with Rod, it really was a fun place. We used to have softball games, and since many of the people were European or didn't know much about baseball, we would run the wrong way on bases. And then we'd go over to Rod's house and you know, he's very open and friendly. I can remember a number of parties at Rod's house.
[01:24:13]

Tacey Ann Rosolowski, PhD
[01:24:14]
Fosters a good environment for all sorts of things.
[01:24:17]

Marvin L. Meistrich, PhD
[01:24:17]
Oh yeah.
[01:24:17]

Tacey Ann Rosolowski, PhD
[01:24:18]
For sure. So I'm sorry, you were telling me about your collaboration with someone in biochem.
[01:24:23]

Marvin L. Meistrich, PhD
[01:24:23]
And that's where we did a lot of work on the nuclear proteins.
[01:24:28]

Tacey Ann Rosolowski, PhD
[01:24:29]
Okay. Who were your collaborators there?
[01:24:30]

Marvin L. Meistrich, PhD
[01:024:30]
Well, Hnilica himself and then two postdocs; Bob Platts and Sid Grimes. And then basically after that, I really continued with that on my own, after they left.
[01:24:55]

Tacey Ann Rosolowski, PhD
[01:24:55]
So how did that work evolve? I mean it sounds like first you were investigating the techniques of separation, and kind of moving into well what are the mechanisms. So how did that evolve?
[01:25:08]

Marvin L. Meistrich, PhD
[01:25:09]
So, then I got interested in these nuclear proteins and as I said, we spent about 30 years characterizing them and manipulating them, in this case knocking out those transition proteins, so we had mutant mice that didn't have them. In fact, I was looking on my -- the last time I looked on my citation list and I'd say on the nuclear proteins, I think we have three of the top ten citations on the separation. So anyway, pretty well cited.
[01:26:05]

Tacey Ann Rosolowski, PhD
[01:26:07]
What is the impact of those studies been? What's the contribution of detailing those mechanisms in that way?
[01:26:18]

Marvin L. Meistrich, PhD
[01:26:20]
I think now, people are thinking more on epigenetic factors that sperm are bringing over to the egg, so not in DNA sequencing but the proteins that are regulating expression. So I think it's the male contribution to the next generation, as well as infertility. If the sperm head isn't packaged right, you lose the ability to peripheralize as it goes down the reproductive tract, and it might be better to take the sperm directly from the testis.
[01:27:02]

Interview Session: 01
Interview Date: April 11, 2017

Chapter 08
Studying Fertility in Humans; Part II of the Cancer Story
A: The Researcher;

Codes
A: The Researcher;
A: The Patient;
A: Personal Background;
B: Multi-disciplinary Approaches;
C: Discovery and Success;
B: MD Anderson Culture;
B: Research;
A: Overview;
A: Definitions, Explanations, Translations;

Tacey Ann Rosolowski, PhD
[01:27:03]
Now, did you do studies that were related? I'm sorry, because I did look on your CV, but I don't have this in my mind. Did you do some work on different types of therapies that produced these different…?
[01:27:18]

Marvin L. Meistrich, PhD
[01:27:18]
So now, let's get into that whole area.
[01:27:20]

Tacey Ann Rosolowski, PhD
[01:27:20]
Oh okay. Well no, I don't want to derail your story if you haven't finished up with this.
[01:27:24]

Marvin L. Meistrich, PhD
[01:27:25]
Because that leads into more of kind of what our current interests are. So, I started out following up on Rod's work on spermatogonial stem cell survival and we looked in more detail, how does the regeneration occur after you kill most of the stem cells. I'd say wipe out these cells, how does the regeneration occur. What level of regeneration do you need to restore fertility and developing different assays for looking at recovery, biochemical, and developed a technique of counting sperm heads in the testis. So about that time, I got interested in well, if radiation does it, what about chemotherapy drugs. And so the first thing we did was in the mouse model, just

characterized different chemotherapy drugs. This was really before it was known what drugs are most sterilizing in humans. In the first paper, we picked seven chemotherapy drugs and whereas all chemo -- and we know now, all chemotherapy drugs will essentially kill these very rapidly proliferating, differentiating spermatogonia, but that's okay, the patient will only be sterile for a little while. But if the stem cell survives, they should recover their fertility. And out of the first group of drugs, it was only Adriamycin that killed the stem cell in the mouse. I'm just trying to remember what drugs we did in the first set. One was cyclophosphamide actually. And then a couple of years later, we extended that to another 14 drugs. We also found that procarbazine would kill the stem cells. So, although somebody in the institution, some leader of the institution criticized that oh, you're just cataloguing them, I thought it was very important. And then I'd say, so I think what we showed in the mouse, comparing different drugs and different treatments, that if you measure a stem cell killing, that's predictive of how long the mouse would be sterile. So, what it really showed was that stem cell killing was the most important factor. The recovery would follow the same kinetics after different treatments.

[01:31:20]
So about that time, I guess there were some colleagues that kind of led the way, got interested in well, we could do humans. This was all external, not the medical people here. And I guess it probably was about nineteen -- late '70s. There was actually a colleague, who we were both together in Bob Brewster's lab in Toronto, Andy Wyrobek, who was then moved out to Lawrence Livermore Lab. He was interested in mutagenic effects on humans, and so I think he was the one who really got me going on the project. We had a great source of collecting human sperm. So, I'm trying to remember the timeframe, but maybe 1978. I did a protocol to be able to collect human sperm, the idea was before and after treatments. Initially, we kind of mainly focused on lymphoma patients, not anything to do with me. Oh, by the way, the end of the story is, I came down to MD Anderson and went to a clinic. I think Jeff (inaudible) was my physician in the clinic and he said well, -- I don't know if it was his first visit or second visit -- we'd like to see the slides, where are they? So I guess they were in the county hospital. I think I had assigned to get them released, and then next time I go down to the clinic he says, Oh, we've got good news for you, you probably didn't have cancer at all. The current diagnosis of that, just on lymph proliferate, it was just the lymphoid proliferation.
[01:34:50]

Tacey Ann Rosolowski, PhD
[01:34:51]
Oh my god.
[01:34:52]

Marvin L. Meistrich, PhD
[01:34:53]
And it wasn't -- and that explains why 20 percent survive; they are misdiagnosed.
[01:35:00]

Tacey Ann Rosolowski, PhD
[01:35:00]
Yeah, they were misdiagnosed. Oh my god, how awful. Well to think -- well it was, but to think you went through all that.
[01:35:09]

Marvin L. Meistrich, PhD
[01:35:10]
Actually it wasn't -- I didn't get the full story until years later, when Jim Butler retired and gave his retirement speech, or that they talked about what his great credits were, and his great credit was a system for re-diagnosing lymphomas.
[01:35:39]

Tacey Ann Rosolowski, PhD
[01:35:40]
Oh my gosh.
[01:35:40]

Marvin L. Meistrich, PhD
[01:35:41]
So, I'm sure I was one of his patients, because that was published in the '70s. So I was one of -- the timeframe, I must have been one of his patients, and he re-diagnosed it as a nonmalignant disease. If it had been non-Hodgkin's lymphoma, local surgery and you know, a very limited field of radiotherapy.
[01:36:13]

Tacey Ann Rosolowski, PhD
[01:36:13]
Wouldn't have done it.
[01:36:14]

Marvin L. Meistrich, PhD
[01:36:15]
Yeah, wouldn't have cured it.
[01:36:16]

Tacey Ann Rosolowski, PhD
[01:36:17]
Well break open the champagne. Oh my gosh, well that was very good news for sure.
[01:36:25]

Marvin L. Meistrich, PhD
[01:36:26]
Yeah. And I guess oh, that's MD Anderson. I mean, Cornell Medical Center, Ontario Cancer Institute, and MD Anderson cracked it.
[01:36:40]

Tacey Ann Rosolowski, PhD
[01:36:41]
Yeah, interesting, wow. Yeah, I've heard they -- you know, when I was speaking to people in pathology, how many second opinions they give and what percentage of them are altered. It's definitely a level of expertise here. Yeah.
[01:36:57]

Marvin L. Meistrich, PhD
[01:36:57]
Yeah. And also time, because this was the era when Butler was doing it.
[01:37:04]

Tacey Ann Rosolowski, PhD
[01:37:05]
Right, right. Well, a happy end to that story, my gosh.
[01:37:11]

Marvin L. Meistrich, PhD
[01:37:12]
Yeah, so that story ended happily. So anyway, I'm getting interested in the human sperm. I'm just trying to remember the details. It really was a big effort to do that here.
[01:37:44]

Tacey Ann Rosolowski, PhD
[01:37:45]
Why so?
[01:37:45]

Marvin L. Meistrich, PhD
[01:37:47]
Nobody -- the clinicians weren't supportive. There was some support but they would -- they weren't eager.
[01:38:06]

Tacey Ann Rosolowski, PhD
[01:38:07]
What did you attribute this to?
[01:38:08]

Marvin L. Meistrich, PhD
[01:38:09]
Well, one comment I got, well several comments that I got. One was, Oh my God, if these guys now find out that they're sterile, they might sue us for not sperm-banking, because you know, people were totally unaware of this and if I was going to do sperm counts to find out this guy's down, you know he'll say well, why didn't you send me for sperm-banking before? And there really wasn't any effort on fertility preservation here.
[01:39:00]

Tacey Ann Rosolowski, PhD
[01:39:02]
It doesn't sound like anybody was thinking too much about setting anything in place to help that. I mean that's a weird reaction: it's better not to know.
[01:39:20]

Marvin L. Meistrich, PhD
[01:39:21]
Another comment about preserving fertility was that well, these guys have cancer, why do they want to have kids? It might be hereditary, which is you know, which is an awful thing because having children is an important part of one's life and the hereditary component may be small. And even if it's higher, there are often things you could do about it, well now, if you know the gene. So, it wasn't taken up positively. I'm just trying to think, when I -- so, I guess I approached -- I got a protocol approved and I approached, I guess, the lymphoma people and some other clinics. I know, despite these comments, we did get support, interest from the lymphoma people.
[01:40:48]

Tacey Ann Rosolowski, PhD
[01:40:49]
I was going to ask you who was supportive.
[01:40:51]

Marvin L. Meistrich, PhD
[01:40:53]
So in terms of doing it, I'm a fairly shy person, and so for me to go down to a clinic… I think I did some of the early patients myself, but then I got a fellow, Miguel da Cunha, who worked with me for about three years or so, and he was really good about you know, kind of the social aspects. After he left --he was a faculty member at the School of Nursing-- and so he was really good to go down to the clinics. We really had to do our own legwork; look at the scheduling, find out when the patients are coming back. The other thing we agreed to do is talk to the patients when they are first diagnosed, talk to them about sperm-banking.
[01:42:00]

Tacey Ann Rosolowski, PhD
[01:42:02]
And this was all in the late '70s, so that's really early for this to be --
[01:42:06]

Marvin L. Meistrich, PhD
[01:42:05]
Late '70s, early '80s.
[01:42:07]

Tacey Ann Rosolowski, PhD
[01:42:08]
Yeah, so this is early for this to be happening.
[01:00:00]

Marvin L. Meistrich, PhD
[01:42:10]
I think our first paper though, we published on the human sperm counts, was probably about '83, '84. Now, so at the time, there was a sperm bank at UT Medical School, and also one that's still in existence, in Dr. Larry Lipshultz's group at Baylor. The UT Med School got out of the sperm banking business, and so Lipshultz still maintains it and now all the referrals go over there.
[01:43:02]

Tacey Ann Rosolowski, PhD
[01:43:02]
And so this is a service specifically for cancer patients.
[01:43:06]

Marvin L. Meistrich, PhD
[01:43:05]
No, for anyone who owns a sperm bank.
[01:43:08]

Tacey Ann Rosolowski, PhD
[01:43:07]
Oh for anyone, oh okay.
[01:43:08]

Marvin L. Meistrich, PhD
[01:43:08]
Yeah. Lipshultz is in neurology and you know, pre-vasectomy, males, aging males. I'm trying to think of other reasons, you know maybe other reasons for sperm-banking.
[01:43:33]

Tacey Ann Rosolowski, PhD
[01:43:34]
So was this the first -- had these kinds of conversations with patients taken place previously?
[01:43:42]

Marvin L. Meistrich, PhD
[01:43:43]
Probably very infrequently. The physicians were really glad that someone else was doing it.
[01:43:55]

Tacey Ann Rosolowski, PhD
[01:43:55]
Yeah, I was going to say, I mean just doing that is new territory, in terms of psychosocial stuff. Yeah.
[01:44:01]

Marvin L. Meistrich, PhD
[01:44:00]
Yeah. I mean that was -- you know, comments on how seriously they considered infertility. You know, first they're telling me I've got cancer. Oh, no; and now they tell me I may not have

children. Like that was even worse. Another comment was that well, the fact that you're storing my sperm, you think I'm going to live through this, so it was, you know. That's true, I think it's positive to think towards the future.
[01:44:40]

Tacey Ann Rosolowski, PhD
[01:44:40]
Sure. Yeah, yeah.
[01:44:41]

Marvin L. Meistrich, PhD
[01:44:42]
And that you're going to survive the cancer. So in terms of kind of the early days, in terms of support, really Miguel was the one who kind of went out and talked to physicians in different clinics. The first study may have been just one patient who was treated with a new drug, and we've gotten enough longitudinal counts. So as counts go down, he was off the drug, it came back, he went back on and it went back down.
[01:45:30]

Tacey Ann Rosolowski, PhD
[01:45:30]
Right.
[01:45:30]

Marvin L. Meistrich, PhD
[01:45:32]
Anyway, this is a drug, it's now known that that class of drugs just produces temporary sterility. And then with the Hodgkin's patients, again it was a matter of working with the clinicians. I mean they weren't going to change their regimens for us, but for us to find out what regimens were there and what variables there were. Like with the Hodgkin's patients, they had previously been giving them four to six courses of MOPP chemotherapy, which is one of the most sterilizing chemotherapies, and hardly any of them were recovering. So they were going to try two courses, giving more local radiotherapy, and with that, I really was impressed by the way, in the lymphoma clinic, the medical oncologists, people like Rick Hagemeister and Peter McLaughlin, were working closely with the radiation oncologist, Lillian Fuller, at the time, to jointly treat lymphomas. So it's two services really working together, and it all means there will be radio oncology input as well as medical oncology. So they cut down the treatment, two cycles of MOPP chemotherapy, giving some more local radiotherapy, and we found it recurred after two cycles, where after four to six, they didn't recover.
[01:47:26]

Tacey Ann Rosolowski, PhD
[01:47:27]
So this was specifically in response to the information that it was very destructive of fertility.
[01:47:37]

Marvin L. Meistrich, PhD
[01:47:38]
No. No, they were just trying that for other reasons.
[01:47:41]

Tacey Ann Rosolowski, PhD
[01:47:41]
They were trying it for other reasons, but you discovered this as a side.
[01:47:45]

Marvin L. Meistrich, PhD
[01:47:45]
Yeah. So that enabled us to find the dose limits, of how much procarbazine you could get before having permanent sterility. And permanent means --I mean we've seen people ten years later, in these longitudinal studies. So I'd say since then, we have, for many years, a good working relationship with the lymphoma people, and several new regimens that they try, we analyze the sperm counts. So it really was a matter, I think, of our keeping up with them, okay what new patient… And pretty soon, when they got new patients and you know, we were intensely interested in that treatment, they would refer the patients even prior.
[01:49:00]

Tacey Ann Rosolowski, PhD
[01:49:01]
About how long did it take for that kind of to evolve? I mean part of it's trust building.
[01:49:09]

Marvin L. Meistrich, PhD
[01:49:07]
Yeah, so I would say certainly, with the lymphoma people, just a couple of years. We also had a good relationship with the Melanoma Sarcoma Clinic. They see a lot of osteosarcomas, which are young kids, and so we did that, soft tissue sarcomas, which are somewhat older and have lower survival but they get more intense chemotherapy.
[01:49:42]

Tacey Ann Rosolowski, PhD
[01:49:43]
When did you start working with melanoma sarcoma?
[01:49:46]

Marvin L. Meistrich, PhD
[01:49:47]
Probably early '80s. And then we've had scattering of patients from other services. We just never seemed to have gotten much interactions with genital urinary medical oncology.
[01:50:11]

Tacey Ann Rosolowski, PhD
[01:50:11]
Why do you think that is?
[01:50:13]

Marvin L. Meistrich, PhD
[01:50:16]
I don't know. So, we had gotten a series of testicular cancer patients who were just treated with radiotherapy seminoma patients, and we were able to study the effects of the scattered radiation on the testis. So I'd say really, one of my best accomplishments is characterizing doses of different chemotherapy agents, and the sterilizing effects, because now, and again it depends on kind of what treatment a patient is going to get, how extreme fertility preservation methods you have them undergo. Now things are going further, particularly with the children, of getting testicular biopsy, contain stem cells from young kids, but only if they're going to get -- you know that's, that's a pretty invasive thing to do, but you only want to do that if there's a reasonably high probability of them being permanently sterilized. Because now we know a lot of regimens will just temporarily sterilize, but again provided that they don't relapse and need stronger regimens. So it could now prioritize to what extremes that they would go for fertility preservation, for the patients that really need it.
[01:52:21]

Tacey Ann Rosolowski, PhD
[01:52:21]
Shall we leave it there for today?
[01:52:23]

Marvin L. Meistrich, PhD
[01:52:23]
Yeah, okay.
[01:52:24]

Tacey Ann Rosolowski, PhD
[01:52:24]
We're almost at noon. Well, thank you.
[01:52:28]
Marvin L. Meistrich, PhD
[01:52:29]
Okay, and so let me just make a note of a couple of --
[01:52:32]

Tacey Ann Rosolowski, PhD
[01:52:33]
Sure. Things for next time.
[01:52:35]

Marvin L. Meistrich, PhD
[01:52:35]
Yeah, topics that we sort of touched on.
[01:52:38]

Tacey Ann Rosolowski, PhD
[01:52:38]
Yeah, absolutely.
[01:52:38]

Marvin L. Meistrich, PhD
[01:52:38]
So, the genetic analysis of the sperm.
[01:52:42]

Tacey Ann Rosolowski, PhD
[01:52:43]
All right, well let me -- while you're doing that, let me just say for the record, that I am turning off the recorder at about one minute of noon.
[01:52:51]

[End of Audio File 01]

Interview Session: 02
Interview Date: May 2, 2017

Marvin L. Meistrich, PhD

Interview Session Two: May 2, 2017

Chapter 00B
Interview Identifier

Tacey Ann Rosolowski, PhD
[00:00:01]
Okay, we're recording. So, for the record, it is about twenty-two minutes of twelve, on the 2nd of May, 2017, and I'm in the Zayed Building in the Department of Experimental Radiation Oncology, and this is my second session with Dr. Marvin Meistrich. So, thanks for meeting me today.

Interview Session: 02
Interview Date: May 2, 2017

Chapter 09
Conducting Fertility Research: Challenges and Results
A: The Researcher;
About 25 minutes

Codes
A: The Researcher;
A: Personal Background;
A: The Patient;
B: MD Anderson Culture;
B: Research;
C: Discovery and Success;
A: Definitions, Explanations, Translations;
A: Overview;
B: Critical Perspectives on MD Anderson;

Tacey Ann Rosolowski, PhD
[00:00:01]+
You said you had some areas that you wanted to make sure we talked about, so I wanted you to go ahead and let me know what you had to add.
[00:00:35]

Marvin L. Meistrich, PhD
[00:00:35]
Okay. I guess one theme, in terms of application of my research, which has been the area of radiation chemo effects on the male reproductive system, is the fertility and genetic integrity of the patients who are treated at MD Anderson. I might have touched on some of this last time and if you remember some of the things that I did cover late time, stop me and I'll move on to something else.
[00:01:12]

Tacey Ann Rosolowski, PhD
[00:01:13]
Okay. Just to refresh you, you sketched your work with nuclear proteins and working with the regeneration of fertility after stem cells had been destroyed. You talked about some of your studies of the impact of chemotherapies and noted that you felt that was a big area of contribution that you had made. So those are sort of the big areas.
[00:01:37]

Marvin L. Meistrich, PhD
[00:01:38]
Okay. A lot of this deals with the fertility preservation of the cancer patients. I think I had mentioned that when I was treated with radiation for my suspected lymphoma, they didn't really know anything about, you know, would it impact fertility? They didn't know. I mean, I guess they could estimate where those [rays] were scattered --physicists who work with radiation oncologists-- and probably estimate that it's maybe, with a half a grade scattered through my testicles. And kind of really that side. But that kind of was always in the back of my mind when I was dealing with patients. I wanted to help them in better ways and the idea of sperm-banking here was not really considered. At that time, there were sperm banks set up at the UT Medical School and at Baylor, and myself and a colleague decided well, wouldn't it be great if MD Anderson had a sperm bank? We were very naïve and actually added that to the protocol.
[00:03:20]

Tacey Ann Rosolowski, PhD
[00:03:20]
Didn't you mention that in fact, there were some people who were quite resistant to even having this subject addressed with patients.
[00:03:30]

Marvin L. Meistrich, PhD
[00:03:30]
Right.
[00:03:31]

Tacey Ann Rosolowski, PhD
[00:03:31]
Which is kind of staggering in this day and age.
[00:03:33]

Marvin L. Meistrich, PhD
[00:03:33]
Yeah, quite. This was 1980 or so, late '70s probably. So, when we started doing these studies and kind of had passed, say the first hurdle, and had more clinicians saying okay, this is something that we should do and good that you want to do it, and we'll give you our help. Anyway, my colleague, Miguel da Cunha, who was working with me at the time, said, "Why don't we have our own sperm bank here, instead of the logistics of sending patients over to Baylor or UT Med School?" And so we added it to our protocol, which at that time was listed as a clinical protocol. Now they've divided things into laboratory studies and clinical protocols. We got approved and we started storing samples as best we could, with what we'd read in the literature. We were totally naïve about anything such as accreditation or liability insurance, and

we probably had about oh, ten or so samples in the sperm bank when somehow, it floated up to the level of the administration, realizing those issues. I don't know at that point, what the accreditation status is. Now, there's American Association of Tissue Banks and they have to accredit every facility. I didn't know what was in place at that time but certainly, liability issues could be there.
[00:05:50]

Tacey Ann Rosolowski, PhD
[00:05:50]
What kind of liability issues?
[00:05:52]

Marvin L. Meistrich, PhD
[00:05:53]
A sample gets destroyed. I put my sperm there, I wanted kids and you know, you melted my kids. So yeah, I could see a lawsuit based on that. The worst thing would be a mix-up in a sample. Yeah, an African family gets an Asian child and where did that come from?
[00:06:20]

Tacey Ann Rosolowski, PhD
[00:06:20]
Right. Create bad dinner table conversations for sure.
[00:06:23]

Marvin L. Meistrich, PhD
[00:06:25]
Anyway, the institution wasn't willing to support us, to go through the steps or hire the people, and they said well, there's a sperm bank over at Baylor. And there was also one at UT Med School, and so no, transfer the samples over there.
[00:06:52]

Tacey Ann Rosolowski, PhD
[00:06:53]
Now let me ask you, what in your mind and in Miguel da Cunha's mind, what was the advantage of having a sperm bank at MD Anderson?
[00:07:02]

Marvin L. Meistrich, PhD
[00:07:03]
Time. Patients are coming in. If the procedure was started as soon as they came in, and there was even some idea that that would be on a potentially sterilizing chemotherapy, they were

informed of this and we'll work up some tests that take like a couple weeks, they would have plenty of time. But they're not, they were not. It was, you know, they're sitting around, waiting for the test results for two weeks and then they say okay, we're going to put you on the CHOP regimen, oh by the way that causes sterility and we want to start it tomorrow. So, a lot of these issues were more of a time constraint and even though the medical center was small then, it's difficult to navigate the medical center. A patient who is under stress has come in and has difficulty enough being at MD Anderson, now we tell him well, you've got to go to Baylor and find the Urology Department or find the Reproductive Sciences Department at the UT Medical School. So, it was the referral process. And then it would give us, also more access to the data. Actually both Baylor and UT Med School had been very good in providing feedback, providing the sperm count data, which was important, and later for genetic studies, actually providing samples that the patient didn't need them, so we can compare genetic properties before and after. That's gotten much more difficult now, with increased regulations, but I'd say in the late 1990s, we had no problem getting the samples from Baylor. I spent a good part of -- this is a year or so ago, trying to get some samples from Baylor, and just the hoops that we have to go through now because of regulations, you know of course those things would have been solved if there was a sperm bank program here at MD Anderson.
[00:10:09]

Tacey Ann Rosolowski, PhD
[00:10:09]
So there still isn't one?
[00:10:10]

Marvin L. Meistrich, PhD
[00:10:10]
Right.
[00:10:10]

Tacey Ann Rosolowski, PhD
[00:10:11]
Oh gosh, so that's -- gosh. I didn't realize that was the punchline. Oh man, huh, okay.
[00:10:20]

Marvin L. Meistrich, PhD
[00:10:22]
So basically, I think I was the only one doing this in the probably late '70s to mid-'90s, and then the person that really did a great job was Leslie Schover, who was in Behavioral Sciences [Department of]. We originally interacted with her when we had a patient who was treated and had difficulty ejaculating or erectile dysfunction, which maybe could be the result of chemotherapy. At that point, Leslie was doing more behavioral sciences stuff and so we'd refer

patients to Leslie and she would usually say, It's stress. There are some papers on erectile dysfunction, ejaculatory dysfunction after chemotherapy, but as far as I've seen, nothing seems to be directly related to that. Of course, the hormone producing cells are not proliferating and they remain just fine.
[00:11:55]

Tacey Ann Rosolowski, PhD
[00:11:56]
Now have you noticed, since you began doing work in this area or trying to work with the institution in developing these sorts of services in the '70s and into the '80s, how has sort of acceptance of this advanced and changed? I remember, you know, it's a sensitive topic to discuss with patients, it's not entirely easy for clinicians even to talk to one another about this, so what have you seen in terms of movement in that area?
[00:12:32]

Marvin L. Meistrich, PhD
[00:12:32]
Certainly more acceptance, but less -- but not much commitment of resources. So, I'd say Leslie really did a great job. She had some very significant papers on you know, the incidents of sperm-banking and reasons why the patients isn't informed, interviewing physicians and patients. She has some very important papers on that. Again, during that time, the institution didn't want to institute their own sperm bank.
[00:13:27]

Tacey Ann Rosolowski, PhD
[00:13:28]
What's the situation at other cancer centers?
[00:13:32]

Marvin L. Meistrich, PhD
[00:13:33]
That's a good question. I don't know.
[00:13:42]

Tacey Ann Rosolowski, PhD
[00:13:43]
I was just curious if it was a cultural thing or a regional thing, or who knows.
[00:13:51]

Marvin L. Meistrich, PhD
[00:13:55]
I think it depends on having someone probably at the institution, making the commitment to do it. I'm trying to remember what efforts Leslie -- I'm sure she made efforts to have something and is always told well, go to Baylor. So, the institution has been somewhat supportive but not putting a lot of money into it. Currently, and actually Leslie was very big in recruiting Terry Woodard, who is in -- actually she has a joint appointment in Gynecologic Oncology here and Gynecology at Baylor, and so she does a lot of IVF over in Baylor. She's the main one, counsel with patients, but her focus is actually mostly on the female, and now patients are referred to her, that's not her, her main motivation. And I just, yeah, I wish I had time to stay involved in that period over the past ten years, I have not.
[00:15:52]

Tacey Ann Rosolowski, PhD
[00:15:53]
Well, clearly an area that you wish would be more developed for sure.
[00:16:01]

Marvin L. Meistrich, PhD
[00:16:02]
Yeah. And some of it was I don't know, difficulty in working with different departments. I haven't checked the status of it, but kind of those of us who had kind of more experience in the field, met with people in Pediatric Oncology and we wanted to work with them to write guidelines of what to tell the patients. Actually, it was myself, I think Leslie, Terry, and also Richard Behringer, who is a basic scientist who has done a lot of work on development of the reproductive tract. Anyway, it seemed like Pediatric Oncology kind of went off on their own to write something, and I know something was up on the website. The person who was doing it left the institution and I haven't checked on the status of it.
[00:17:28]

Tacey Ann Rosolowski, PhD
[00:17:28]
Well I remember when I interviewed Eugenie Kleinerman [oral history interview], you know she talked about the fact that they did do some counseling in this area. We didn't talk about it in-depth. What were you and Leslie, Terry and Richard hoping would come out of that?
[00:17:45]

Marvin L. Meistrich, PhD
[00:17:45]
That we would work -- we had more involvement with the people, with Genie, but someone else in the department, but it seemed like she wanted to do it on her own. Again, I'm not sure what's

up on the website now, but at one point, I think it needed some improvements.
[00:18:12]

Tacey Ann Rosolowski, PhD
[00:18:13]
I know that a lot of people talk about difficulties sometimes, working across the silos. Is there something about the culture of the MD Anderson? What do you attribute that to?
[00:18:26]

Marvin L. Meistrich, PhD
[00:18:30]
I would say individuals. Certainly, when I came to MD Anderson, I had an excellent feeling of collaboration, and I still had good feelings of collaboration. There's a technique that we need now, which is laser capture microdissection. I'd looked into it before and kind of people had equipment, but the equipment was old and they weren't using it. Anyway, we kind of hit a brick wall about five years ago. Anyway, so just recently, I saw that Dr. Wistuba in pathology, he had his name on some papers using it and I contacted him and he referred me to an assistant professor, Jaime Rodriguez, and his lab, and Jaime took us over there, showed us the equipment. He has experience with it, we could use it free of charge. I don't know whether it's a core piece of equipment or not but anyway, he just wanted people to use it. I think this is a great example of -- and I think being -- I guess the best thing about the medical center, not only MD Anderson, is that whatever you're doing… And this was even when it was one-tenth the size, in the 1970s, there's a world expert here. Whether it's here or the med school or the VA or Baylor, you're bound to find someone who is really an expert in that area.
[00:20:42]

Tacey Ann Rosolowski, PhD
[00:20:43]
I wanted to ask you what is that? And you said it's laser capture microdissection?
[00:20:49]

Marvin L. Meistrich, PhD
[00:20:49]
Yeah.
[00:20:49]

Tacey Ann Rosolowski, PhD
[00:20:50]
What did you need to use that technique to do?
[00:20:53]

Marvin L. Meistrich, PhD
[00:20:56]
That's in a histological section, to pick certain cells out of it. This was when we did a monkey transplant, so we put cells of the donor monkey into the tester. We were surprised, it looked like the donor cells formed their own new tubules. The testis has lots of tubules with germ cells, or been radiated and the germ cells are killed, but here we put cells from a young money in, and it looked like there were new tubules formed and that had germ cells.
[00:21:37]

Tacey Ann Rosolowski, PhD
[00:21:38]
Wow.
[00:21:38]

Marvin L. Meistrich, PhD
[00:21:38]
And it's only in the region of the histological section. So we wanted to pull out, we figure if we pull out you know, maybe we could get 10,000 cells, by putting kind of a cap that has a sticky thing on it and shining a laser through it, you can stick the cells you want to the cap and then put the cap in a small microfuge tube with a solution, to extract the DNA. And then we could tell, by genotyping the DNA, whether it was from the donor monkey or the recipient monkey. It's a neat technique. Actually, it's been around for quite a while. Anyway, it's great to find someone here that's got it and willing to help.
[00:22:34]

Tacey Ann Rosolowski, PhD
[00:22:34]
Willing to share his toys, yeah for sure. That is a great example. Were there other subjects you wanted to touch on?
[00:22:49]

Marvin L. Meistrich, PhD
[00:22:50]
Well let's see, also on the issue of fertility preservation, the simplest thing is banking sperm. I saw a number, that still, only 24 percent of cancer patients bank sperm before they get chemo, and this is, I guess nationwide. Of course some of them probably are going to get very mild chemo and probably don't need it, but I think there still is an ongoing need. Certainly, the physician support staff is much more aware of it, but I just don't know what priority that is right now. But I thought well, I've done something to get that going here.
[00:24:02]

Tacey Ann Rosolowski, PhD
[00:24:02]
Yeah. At least have it in people's minds, right.
[00:24:05]

Marvin L. Meistrich, PhD
[00:24:05]
So now what we're interested in is what can be done with pediatric patients. This is the basis of our research, of taking the spermatogonial stem cells out of the young monkeys and trying to more efficiently transplant them back to the adult monkeys. Now, many centers are currently freezing tissue from prepubertal boys for this possibility. Again, it doesn't seem to be high on the radar at MD Anderson. Again, we've talked to pediatrics about it and they never really picked up the ball. I know some cases here are being done. So the people at Baylor, who do this, first of all you need a cryopreservation bank.
[00:25:14]

Tacey Ann Rosolowski, PhD
[00:25:14]
Right, right.
[00:25:15]

Marvin L. Meistrich, PhD
[00:25:15]
And people at Baylor have that and they're doing cases at Texas Children's.
[00:25:21]

Tacey Ann Rosolowski, PhD
[00:25:22]
I noticed that you had published an article, *Preserving Male Fertility with Stem Cell Cryopreservation and Transplantation*. So yeah, I kind of had that on my list to ask you about.
[00:25:34]

Marvin L. Meistrich, PhD
[00:25:35]
Yes. That's the emphasis of our current work on primates, cryopreserving the spermatogonial stem cells and transplanting them back into monkey testes. In our last batch of monkeys, the efficiency wasn't as high as we'd expect. We only got about one out of five monkeys that had the donor sperm, but two of the monkeys had almost exclusively donor sperm. So, we're not transplanting their own stem cells back in because we can't effectively genetically mark those, so we transplant them from another monkey and then we could very easily just run a DNA analysis and see which monkey it was from. Anyway, we're getting good numbers of sperm derived from

the donor, so these monkeys well, at least produced enough sperm for invitro fertilization.
[00:26:55]

Tacey Ann Rosolowski, PhD
[00:26:58]
How long have you been doing that work?
[00:27:00]

Marvin L. Meistrich, PhD
[00:27:02]
So really, the primate work, for oh, about eight, nine years now, and this is based on what we -- well let's see, we did some primate work in the early 2000s, but that was before we were doing transplantation, just to see if hormonal modulations could enhance the endogenous recovery. We got mixed results on that, but it seems like the hormonal modulation actually suppressing hormones for a while, and then you get a rebound effect, it really helps the transplantation.
[00:27:45]

Interview Session: 02
Interview Date: May 2, 2017

Chapter 10
Fertility Research and the Value of Technology and Advanced Techniques
A: The Researcher;

Codes
A: Overview;
A: The Researcher;
A: Definitions, Explanations, Translations;
B: Devices, Drugs, Procedures;
D: Technology and R&D;

Tacey Ann Rosolowski, PhD
[00:27:47]
Now I wanted to ask you about the impact of technology on what you do and, I mean clearly, you're working in a new area and opening up new arenas of knowledge about cancer and fertility. But at the same time, kind of in parallel, technology is evolving and I'm wondering, what have been some really important technological advances that have helped push your research ahead?
[00:28:18]

Marvin L. Meistrich, PhD
[00:28:21]
So, the therapy we're doing now, with the transplantations from a different donor monkey, just DNA analysis… Actually, we're not doing next generation sequencing, we're doing kind of maybe ten-year or twenty year-old technology, but that wasn't available forty years ago.
[00:28:50]

Tacey Ann Rosolowski, PhD
[00:28:50]
Right, right.
[00:28:50]

Marvin L. Meistrich, PhD
[00:28:51]
That's looking for DNA differences. You know, ten samples could be run on a cell and each one is color coded, and at the same time, they measure the size of a DNA band, and there's one size that's typical of one monkey and the region called microsatellites, which are DNA sequences that vary a lot between people and animals. So, just the speed with which that can be done and the technology. In the sample where we sent 10,000 cells and were able to get good signals. Now we're talking about maybe a thousand cells from the laser microdissection, and so I think certainly, in DNA technology, DNA sequencing, has really helped. Of course if we do produce a monkey, I think we really have to carefully do DNA sequencing, and also the epigenome, not

just the DNA sequencing or the methylation marks that are on the DNA, are they in the proper place? Are the proteins that are regulating transcription, the histones laid down properly. So I think a lot of those molecular kind of DNA related techniques, including gene sequencing, hasn't impacted us much in this project, but the ability to make transgenic animals. Certainly, in our mouse transplants, we could put green fluorescent protein in the donor cells. Actually, I think somebody's made a monkey with green fluorescent protein.
[00:31:37]

Tacey Ann Rosolowski, PhD
[00:31:37]
Really? Huh.
[00:31:38]

Marvin L. Meistrich, PhD
[00:31:38]
I think some group in China, but I mean it's not easily available. Certainly, genetic marking of cells is a way of identifying where they're going, has been a very valuable technique. Actually in this transplantation experiment, we're not only trying to transplant cells from -- stem cells from immature monkeys, but we're trying to go to pluripotent stem cells, so in the embryo, the early cells can differentiate into everything, but if left alone, they will differentiate into a tumor.
[00:32:34]

Tacey Ann Rosolowski, PhD
[00:32:35]
Oh, wow.
[00:32:36]

Marvin L. Meistrich, PhD
[00:32:36]
So, you know about that. So, working with a collaborator, with UCLA, she's developing techniques with both human and monkey, and we've taken our cells from the monkey. They take the undifferentiated pluripotent stem cell, either naturally collected from an embryo or trans-- the induced pluripotent stem cells. We can take a skin cell and put some genes into it, and it behaves as a pluripotent stem cell. But under certain culture conditions, to start it differentiating to become a germ cell, and we've taken some of those cells and transplanted them into -- these monkey cells into monkeys and also into nude mice, and there's some evidence that they're forming germ cells. So, you know, in case the real permanent growing stem cell is available, maybe you can take a skin cell.
[00:33:59]

Tacey Ann Rosolowski, PhD
[00:34:00]
That's amazing.
[00:34:01]

Marvin L. Meistrich, PhD
[00:34:02]
So I think it's, you know cellular techniques. These methods have just come on in the last five years, I think, where you can take an undifferentiated stem cell and under certain culture conditions, get it going along the germ cell line, because that's what happens in the embryo in an undifferentiated cell, and some cells are selected to become germ cells, and now people are doing that in vitro. So yeah, the other thing I would say is that in vitro techniques themselves are changing.
[00:34:40]

Tacey Ann Rosolowski, PhD
[00:34:41]
Very neat. So when you began in the field years ago, did you imagine any of this might happen?
[00:34:49]

Marvin L. Meistrich, PhD
[00:34:49]
Oh, no. Well, so the famous experiment of spermatogonial transplantation was done by Ralph Brinster at University of Pennsylvania, in the 1990s. Actually, I don't know if I mentioned this last time. When I was a postdoc in Toronto, I had the idea of it and I put cells from an immature mouse, just injected it into the testis of a mouse that didn't have any germ cell. Nothing happened but that's because I just injected it into the testis, where Brinster was able to inject it into the tubules.
[00:35:28]

Tacey Ann Rosolowski, PhD
[00:35:29]
Right, yeah you did mention that, sort of a near miss.
[00:35:32]

Marvin L. Meistrich, PhD
[00:35:33]
Yeah. So, you know, there were dreams and ideas but they weren't there yet.
[00:35:45]

Tacey Ann Rosolowski, PhD
[00:35:46]
Well, I interrupted you with this question about technology. Were there other things on your list that you wanted to cover?
[00:35:52]

Marvin L. Meistrich, PhD
[00:35:53]
Yeah. So the other area of analyzing the sperm has been the genetic analysis of the sperm. Of course, in my background, in my postdoctoral years, I was interested in ultraviolet light induced mutations. Obviously, the ionizing radiation, the chemotherapy that these patients are getting, it's highly mutagenic. So that, that's been another theme and we utilized the human sperm in two main areas. So, one was a collaboration that I sent up with Andy Wyrobek, who was at the Lawrence Livermore Lab at the time, and he had developed techniques for fluorescent and see-through hybridization, to determine what chromosomes are given sperm head. So, you take say Y chromosome of DNA and half the sperm, so you had half the spots, let's say half the sperm had the Y chromosome. If you put chromosome number 12, they should have one spot. Now, if they have none or two spots, then there was some improper segregation of the chromosome and you come up with aneuploid individual, and things like certain trisomy 21 and trisomy 16, and $$one other, and one is Downs Syndrome. And also things like XX-1, Klinefelter Syndrome. Anyway, he was able to look at these abnormalities in sperm, in a number of chromosomes. So, we did several studies on a patient before, during and after chemotherapy, and the interesting thing we found is that if the sperm were collected essentially during or very shortly after chemotherapy, that the cells were going through spermatogenesis, so it takes about 60 days from when a stem cell gets going to they'll pass through spermatogenesis. Any time during that time, they would be more susceptible to an event. If they get hit by the chemotherapy at that stage, they'd be more susceptible to aneuploidy. And so what we noticed was there was an increased in aneuploidies, say two months or -- say during chemo, while there was still sperm produced, or even in the short period after chemo, but by three months it went down to background level. So, this really emphasizes that patients on chemotherapy should avoid conception and but that at least with that drug combination, they wouldn't have to worry about aneuploidy if they wait three months; so just in case, we always told them six months. Other people with other chemotherapy regimens, and I don't think who had as good data, said to wait at least a year, because they saw some evidence -- I didn't think the evidence was that good, -- of aneuploidy a year after the end of a different chemotherapy regimen.
[00:40:17]

Tacey Ann Rosolowski, PhD
[00:40:18]
Now this was just with chemo, or did this also involve UV light?
[00:40:22]

Marvin L. Meistrich, PhD
[00:40:25]
The UV light was kind of in the past.
[00:40:27]

Tacey Ann Rosolowski, PhD
[00:40:27]
Is a separate thing, okay.
[00:40:28]

Marvin L. Meistrich, PhD
[00:40:29]
Yeah, I guess -- yeah, UV light is inducing treatment, I mean it's bad for skin exposure.
[00:40:40]

Tacey Ann Rosolowski, PhD
[00:40:40]
Right, but this was your original interest. Yeah, okay, gotcha.
[00:40:42]

Marvin L. Meistrich, PhD
[00:40:42]
Yeah, yeah. And some of these patients might have gotten a little bit of ionizing radiation as well, to some scattered radiation from the lymph node. The other area that I was very interested in is looking at changes in the DNA sequence. Thing like what are called mini satellites and microsatellites, which are repeat sequences in DNA, are much more mutable and that's easy to see if you have a repeating sequence; A-T-A-T-A-T, and you're trying to replicate it, it's easy, and DNA, you know sticks together loosely and sometimes it denatures. Well hey, if you have an A-T-A-T, and here's the A-T-A-T on the other side, I mean normally it should bond this way, but maybe it will shift by two, and then when it replicates it produces a sequence that's two shorter or two longer.
[00:41:58]

Tacey Ann Rosolowski, PhD
[00:41:59]
Now just out of curiosity, what is it that creates these mini or microsatellites?
[00:42:05]

Marvin L. Meistrich, PhD
[00:42:07]
DNA in evolution tends to sometimes duplicate itself, and once you have a repeat, it could add

more repeats on. So there are a lot of repeat sequences in the DNA.
[00:42:25]

Tacey Ann Rosolowski, PhD
[00:42:28]
Are all of them functional?
[00:42:28]

Marvin L. Meistrich, PhD
[00:42:29]
They usually get in the way of things, yeah, so um, myotonic dystrophy is caused by an expansion of a repeat.
[00:42:46]

Tacey Ann Rosolowski, PhD
[00:42:46]
I'm sorry what was that?
[00:42:47]

Marvin L. Meistrich, PhD
[00:42:47]
Myotonic dystrophy, Huntington's, Huntington's career. Those are trinucleotide repeats, that said that they're mutable and when they reach a certain length they become even more mutable, and then they could expand to affect the function of that gene that they're associated with.
[00:43:14]

Tacey Ann Rosolowski, PhD
[00:43:15]
Okay, interesting. And so you've done studies with mutability under chemo.
[00:43:22]

Marvin L. Meistrich, PhD
[00:43:23]
Yeah, before and after chemo. These microsatellites, which are short repeats, like two base pairs or three, four base pairs, and then there are mini satellites, which are longer sequences, maybe ten or twenty base pairs that somehow are repeated in the genome. And you could do an analysis of okay, how long is that? You get probes on either side of it and say how long is that sequence? And in different individuals it's different sizes, just because repeats could get chopped out. Anything that's repeated is unstable. Of course you can get recombination. You're not sure that you aligned it with this one or you aligned it with that one. Actually, I had the good fortune, in 1998, to do a sabbatical with Dr. Alec Jeffreys, in University of Leicester in England. Actually,

there was a student in -- actually he was working with Mike Siciliano, who we were collaborating with on these mini satellite mutations. Anyway, there was a student of Al Jeffreys, working as a postdoc, and anyway through that connection, -- and Alec Jeffreys really was the one who invented DNA fingerprinting, and the DNA fingerprint was the length of these mini satellites, and he studied the stability of them in somatic cells, and also in sperm. Anyway, they seemed much more stable in sperm. Wait, it's the other way around, much more mutable in sperm. So he thought wow, maybe radiation and chemo are doing something. So, we got two papers. One was done here, by a graduate student that I had, using the techniques, with the help of Darren (inaudible), who is a postdoc and Jeffreys lab here, and then I did a sabbatical, where I brought some of our samples from radiated patients over there. And maybe in one -- let's say in the three radiated patients, we didn't see any increase in mutation with the radiation. With the chemotherapy samples that we analyzed here, there was one patient that just barely, at the marginal level of significance, showed a twofold increase in mini satellite mutation after his chemotherapy. So it wasn't enormous, and it was a lot of work to show that was significant, and that was one out of ten patients. So the good news is that these sequences aren't affected by radiation and chemo. The bad news was it was the end of the project, but it came to a good end, a good end for the clinical outcome.
[00:47:18]

Tacey Ann Rosolowski, PhD
[00:47:19]
Was there anything aside from that, that you learned from doing that work? I mean did it create any kind of knowledge that would have an impact on further study?
[00:47:29]

Marvin L. Meistrich, PhD
[00:47:32]
Well, what I always wanted to do and really, about three years ago is now, you can sequence the whole genome. But in talking to people, the accuracy of doing it is not quite there for detecting single-based mutations. In talking to people, they would be willing to work on -- anyway, I think it will be solvable with some work, but nobody was interested in doing the work. I said here, if I give you these samples, but they're doing single cell sequencing for other purposes. So, if I had my own project going, yeah I could have gotten involved in that. So the idea now, of whole genome sequencing, you could tell whether there's a difference in the sperm before or after. I was excited a couple of years ago, a paper came out where they did show this whole genome or whole exome, which is the coding part of the genome sequencing, of two fathers, two sons, that they had, they were born before they received chemo, and then three sons, one from one and two from the other, that were born after they received the chemo. So, if they do -- if you're doing an individual, you have the advantage of repeating it. I was wanting to do it on single sperm cells which, if you have a one in a million error, you'll pick up a few thousand mutations, scratch your head and wondering whether that's an error. But if you're doing an individual, you could repeat

it multiple times and cross out the occasional errors. Basically what they found is the mutation rate between father and son, before the father got chemo, was the same as the mutation rate between father and son after the father got chemo. So, no more mutations were generated in the father's sperm as a result of chemo.
[00:50:52]

Tacey Ann Rosolowski, PhD
[00:50:53]
Another good outcome.
[00:50:55]

Marvin L. Meistrich, PhD
[00:50:56]
Yeah. But those are the sorts of experiments I would have loved to have done. It seems really promising that for people, it's really safe to have kids. We had no idea, you know, what the answer would have been.
[00:51:24]

Tacey Ann Rosolowski, PhD
[00:51:25]
Well I'm sure that takes an enormous burden off the minds of many, many people. Interesting. So did we go through your list?
[00:51:37]

Marvin L. Meistrich, PhD
[00:51:38]
Yeah.
[00:51:38]

Tacey Ann Rosolowski, PhD
[00:51:40]
Okay. Actually, we did a bunch of my list too, (laughs) at the same time.

Interview Session: 02
Interview Date: May 2, 2017

Chapter 11
An Overview of the Department Experimental Radiation Oncology
B: An Institutional Unit;

Codes
B: MD Anderson History; B: MD Anderson Snapshot;
B: MD Anderson Culture;
B: Critical Perspectives on MD Anderson;
B: Research;
B: Care; D: On Care;

Tacey Ann Rosolowski, PhD
[00:51:40]

I did want to ask you about the department, the history of the department, kind of how it's evolved, what your perspective is on that.
[00:51:55]

Marvin L. Meistrich, PhD
[00:51:55]
Okay, let me try to do it in a polite and tactful manner. So, when I came here, essentially it was -- I think things were kind of new and exciting. Herman Suit had left as head and Rod Withers had just taken over. I think there was a lot of good radiation biology that was done in the department. My interests at that time, was development of cell separation techniques, and originally, I did that for the spermatogenic cells, but there were a lot of collaborations with people in the department separating mouse tumor, human tumor, and so I was working a lot on these separation techniques in good collaboration, cultured cell, separating them in different phases of the cell cycle, which actually at that time, the separation techniques which we were using, which were sedimentation rate techniques, centrifugal elutriation, were actually working better than flow sorting. The technology of flow sorting has gotten much, much better now, but at that time, the reliability itself wasn't very good, the sorting rates were low. Anyway, I really felt good interaction within our department, and a lot of good collaborations within the department. Let's see, Rod Withers left I don't know, nineteen… it must have been -- hard to count time. At any rate, maybe 1980, maybe later. Luka Milas took over as department head, basically continued along with the same directions as Withers; a lot of good mouse, normal tissue with tumor, radiobiology.
[00:55:10]

Tacey Ann Rosolowski, PhD
[00:55:11]
So this was still under Dr. LeMaistre [oral history interview].
[00:55:14]

Marvin L. Meistrich, PhD
[00:55:15]
Oh let's see, I'm kind of --
[00:55:20]

Tacey Ann Rosolowski, PhD
[00:55:21]
I'm just curious.
[00:55:22]

Marvin L. Meistrich, PhD
[00:55:24]
I'm trying to remember when the Clark-LeMaistre transition occurred.
[00:55:27]

Tacey Ann Rosolowski, PhD
[00:55:26]
Yeah, I can't remember. I'm ashamed to say I can't remember when Dr. LeMaistre took over. I know he left in '96.
[00:55:38]

Marvin L. Meistrich, PhD
[00:55:40]
Yeah, so this must have been either under Clark or LeMaistre. I guess Luka was chair for quite a while, guess I'm not sure of the years, and then Ray Meyn took over as intern chair.
[00:56:10]

Tacey Ann Rosolowski, PhD
[00:56:11]
And I didn't ask you, why did Rod Withers leave?
[00:56:15]

Marvin L. Meistrich, PhD
[00:56:16]
He wanted to go to sunny California. I mean, he just had ideas of what he wanted to do, and I

think California was a draw to him. He went to UCLA.
[00:56:32]

Tacey Ann Rosolowski, PhD
[00:56:33]
And what about Luka Milas, what was his reason for leaving?
[00:56:37]

Marvin L. Meistrich, PhD
[00:56:37]
I guess nearing retirement. Yeah, I think after he stepped down, I think he stayed on for a while when Ray was acting chair, and then Ray stayed on until Junjie Chen was appointed.
[00:57:12]

Tacey Ann Rosolowski, PhD
[00:57:14]
And was that an internal appointment?
[00:57:15]

Marvin L. Meistrich, PhD
[00:57:16]
Chen? No, he was an outside recruitment.
[00:57:20]

Tacey Ann Rosolowski, PhD
[00:57:21]
Was that a transition point in the department, when Dr. Chen came in?
[00:57:25]

Marvin L. Meistrich, PhD
[00:57:25]
Yeah.
[01:00:00]

Tacey Ann Rosolowski, PhD
[00:57:26]
So tell me about that, what shifted?
[00:57:28]

Marvin L. Meistrich, PhD
[00:57:30]
So, before, I'd say we were fairly classical radiation biology, doing good stuff. Milas brought in some tumor immunology. Again, I think it was kind of early days of immunology, not close to the bombshell that immunology is now. I think we were a little slow getting into really molecular techniques. Probably mine was the one mainly pushing for it and I was surprised that two people who came -- I think they were postdocs with Ray initially and got faculty positions. I don't know if they were on tenure track or nontenure track. I think they were on nontenured. Somehow, I don't know why either of them didn't get on tenure track. One guy is head of the Department of UT Southwestern now, and one's -- I'm not sure what his title is, but he's pretty high up at Colorado State University. So they were doing more molecular work and I just don't know why they didn't…
[00:59:30]

Tacey Ann Rosolowski, PhD
[00:59:30]
Yeah, that's interesting, because they represented something that was coming.
[00:59:33]

Marvin L. Meistrich, PhD
[00:59:34]
Yes. I think that was kind of a downside of the department, that we were doing the kind of old radiobiology but not really getting -- applying molecular techniques as well as we should have. And also, I think an institution-wide thing of not appointing internal people who started as postdoc, are nontenure track, to faculty tenured track positions. I think it's very difficult for someone to make the jump, but for whatever reason, I don't know. Many departments prefer recruiting from the outside.
[01:00:48]

Tacey Ann Rosolowski, PhD
[01:00:51]
So, are you saying that there's an advantage to internally appointing people?
[01:00:55]

Marvin L. Meistrich, PhD
[01:00:55]
If they're good.
[01:00:56]

Tacey Ann Rosolowski, PhD
[01:00:56]
If they're good, yeah, okay. I just wanted to make sure I understood.
[01:01:00]

Marvin L. Meistrich, PhD
[01:01:02]
These two guys were really good. The departments made some excellent appointments during those years since then, but the focus really has shifted from radiation biology. So, Dr. Chen, his molecular work, he did have a good history of stuff related to radiation. It seems that he's brought in people who are, I could just say they're outstanding. They're getting CIPR awards, they're getting NIH grants, but there's less of a focus on what our department was supposed to be, which was experimental radiotherapy.
[01:02:20]

Tacey Ann Rosolowski, PhD
[01:02:22]
Why do you think that is?
[01:02:24]

Marvin L. Meistrich, PhD
[01:02:28]
Well one thing, I know when we go to recruitings, sometimes someone comes in who has more radiation biology background. Maybe that isn't given enough weight.
[01:02:55]

Tacey Ann Rosolowski, PhD
[01:02:57]
Do you have a sense of what Dr. Chen's -- and is Dr. Chen still chair of the department?
[01:03:04]

Marvin L. Meistrich, PhD
[01:03:05]
Yeah, oh yeah.
[01:03:06]

Tacey Ann Rosolowski, PhD
[01:03:05]
Okay, I just, I didn't have the department history in my head.
[01:03:08]

Marvin L. Meistrich, PhD
[01:03:09]
He's probably been here eight years.
[01:03:14]

Tacey Ann Rosolowski, PhD
[01:03:15]
Okay. So, do you have a sense, does the department have a sense, of what Dr. Chen's vision for the department is, how he wants it to evolve?
[01:03:28]

Marvin L. Meistrich, PhD
[01:09:29]
Well, it sounds like he wants, he certainly wants good molecular biologists, people working in signal transduction, much of which you know, even though the people may be coming ahead to work on cancer, but now they're applying their information to targeting cancer, whether they're working on, whatever signaling pathway they're working, there are cancer treatment targets. So it's good science but it's different from what we used to do.
[01:04:19]

Tacey Ann Rosolowski, PhD
[01:04:19]
Right. I mean I've had conversations like this with a number of people who have observed that at a certain point it's gotten to be hard to tell what department somebody should be in, because there are so many crossings over.
[01:04:33]

Marvin L. Meistrich, PhD
[01:04:31]
Exactly.
[01:04:31]

Tacey Ann Rosolowski, PhD
[01:04:36]
In your mind, what are the pros and cons of that?
[01:04:39]

Marvin L. Meistrich, PhD
[01:04:40]
Well, it's brought good people to MD Anderson and good research. I think the cons are less contribution to radiation oncology. I know, it seems like the division leaders have been

supportive of this, Dr. Cox [oral history interview] and Dr. Buchholz [oral history interview], and then Dr. Hahn. So, it does raise the quality of the department. It was harder finding good molecular biologists with radiation experience, so I think we got better people, though less focused on the needs of a radiation oncology department.
[01:05:52]

Tacey Ann Rosolowski, PhD
[01:05:53]
I mean is it -- you know, and this is maybe an incredibly naïve question, so excuse me, but does it say something about the way that the boundaries of traditional fields are becoming fuzzier? Is there something happening in science where there's so much interpenetration that you know, maybe fields are going to have to redefine themselves slightly?
[01:06:22]

Marvin L. Meistrich, PhD
[01:06:25]
Yes, I think new techniques need to be brought into it. You can't do the experiments we did in 1970, we can't do them over and over. I guess what I see is that we're a division where radiation treatment is the expertise of the clinical department. Of course, patients do get chemo, radiation, and targeted therapy with radiation, and you've got to know both sides of that. It seems like people in our department are not combining radiation with their work, to the optimal level of improving the clinical outcome.
[01:07:34]

Tacey Ann Rosolowski, PhD
[01:07:34]
Okay, I see where your emphasis is lying here, yeah. If you could design the perfect departmental world, what would that look like, you know what would you want to see happen?
[01:07:53]

Marvin L. Meistrich, PhD
[01:07:54]
Outstanding people with molecular expertise, applying their research directed to what the clinicians need. Now see, I'm not doing that myself, so I shouldn't preach what I'm not practicing, but you phrased the question if I could present it.
[01:08:25]

Tacey Ann Rosolowski, PhD
[01:08:25]
Now, do you have a sense of what's happening in other radiation oncology departments, I mean

is it a similar thing happening elsewhere?
[01:08:37]

Marvin L. Meistrich, PhD
[01:08:37]
Yeah. It's certainly harder to find people at that level working in radiation biology, but there are outstanding people doing it and doing things related, directly related to radiation treatment.
[01:09:10]

Interview Session: 02
Interview Date: May 2, 2017

Chapter 12
Views on Changes at MD Anderson Since the Seventies
B: Institutional Change;

Codes
B: Growth and/or Change;
B: Obstacles, Challenges;
B: Institutional Politics;
B: Controversy;
B: MD Anderson in the Future;
B: Critical Perspectives on MD Anderson;
B: MD Anderson Culture;
B: Working Environment;
B: The Business of MD Anderson; C: The Institution and Finances;
B: Gender, Race, Ethnicity, Religion;
B: MD Anderson History; B: MD Anderson Snapshot;

Tacey Ann Rosolowski, PhD
[01:09:15]
Well, I wanted to ask you if you had some observations to make about kind of the current changes at the institution. I know it's kind of a strange time. (laughs)
[01:09:32]

Marvin L. Meistrich, PhD
[01:09:33]
Yes.
[01:09:33]

Tacey Ann Rosolowski, PhD
[01:09:34]
I was wondering if you had -- you know, you've been with the institution for a long time, you've seen a lot of shifts in the culture. What's your wisdom about what's been happening, and maybe the change that the institution is going through right now.
[01:09:55]

Marvin L. Meistrich, PhD
[01:09:58]
Certainly, Dr. DePinho [oral history interview] was unpopular with the faculty, and I think there was a lot of resentment because he formed this institute [?], Applied Cancer Science, wanted to go into drug development, and it seemed like he took a lot of resources from the institution and put it towards his people and hacks. It was a feeling that he wasn't building up the institution,

wasn't putting resources into the people who are here.
[01:11:09]

Tacey Ann Rosolowski, PhD
[01:11:11]
What was your -- well, I should let you go on, and then I'll ask.
[01:11:14]

Marvin L. Meistrich, PhD
[01:11:15]
And, I mean it happened when Mendelsohn [oral history interview] brought in people, but not to the extent that we saw with DePinho.
[01:11:21]

Tacey Ann Rosolowski, PhD
[01:11:22]
I was going to ask you if you felt, what was your opinion of the movement to kind of create this new model of research via the Moon Shots [Program]? What did you feel were the pros and cons of that?
[01:11:38]

Marvin L. Meistrich, PhD
[01:11:40]
I don't have any strong opinions about it. I'm just kind of, anything I know has been hearsay, so yeah, I probably would better stay away from it and say yes, there are pros and cons of it.
[01:11:21]

Tacey Ann Rosolowski, PhD
[01:11:22]
Yeah, no fair enough, that's fine. Well, I mean Dr. DePinho resigned probably six, seven weeks ago at this point and there had been a number of kind of new faces that have stepped up to shepherd the institution into this new period. What's your read on what's been going on and what your hopes are for that institution, what will happen.
[01:12:45]

Marvin L. Meistrich, PhD
[01:12:45]
Well, first of all, that they put things on a better financial status. It's really worrisome that things like Blue Cross doesn't -- you know, MD Anderson is not a preferred provider. And to really improve that, whether it's reducing costs, so that the insurance companies come back into the patient care arena. So, anyway, I hope the new administration would do a better financial job, so

that the clinics are making money and that we could do our research. In this cutback, I think research labs have been protected, you know, we haven't had -- like our department didn't have any cuts.
[01:13:58]

Tacey Ann Rosolowski, PhD
[01:13:58]
Really? Wow.
[01:13:59]

Marvin L. Meistrich, PhD
[01:14:00]
Yeah, because it's research supported and those are research dollars. I know Radiation Oncology, clinical people had cuts.
[01:14:16]

Tacey Ann Rosolowski, PhD
[01:14:16]
Right.
[01:14:16]

Marvin L. Meistrich, PhD
[01:14:18]
So much of it was supported by grant, accompanying nine counts, so we didn't feel that crunch. I hope that they bring in a good leader. I guess when DePinho was appointed, I was optimistic because wow, here's the first time there's really been a very qualified scientist. Certainly neither Clark nor LeMaistre [oral history interview] had any significant scientific training, Mendelsohn did have, you know, scientific discovery credentials. I thought wow, here's DePinho, who is a real scientist, and he was going to boost science, but he just didn't administer the institution well and didn't create the attitude of support.
[01:15:47]

Tacey Ann Rosolowski, PhD
[01:15:48]
What do you think is the value, or what could a very qualified scientist, who is also a compelling administrator, what could having a scientist in the president's office do for the institution?
[01:16:05]

Marvin L. Meistrich, PhD
[01:16:05]
I think he could up the quality of science, recruit more outstanding scientists. MD Anderson has

had a very low percentage of members in the National Academy of Sciences. To recruit and develop people of that caliber, develop and keep people of that caliber.
[01:16:43]

Tacey Ann Rosolowski, PhD
[01:16:46]
Do you feel there's questions about the caliber of science here at the institution?
[01:16:52]

Marvin L. Meistrich, PhD
[01:16:52]
I think it's excellent, but you go to other places and there are many National Academy members. I mean, I would say it's really good, but it hasn't achieved that higher level. So I think currently, I guess Jim Allison is probably the only -- well DePinho was.
[01:17:34]

Tacey Ann Rosolowski, PhD
[01:17:34]
What would having that caliber of scientist or you know, more individuals at that rank, what would that represent to patient care do you think?
[01:17:45]

Marvin L. Meistrich, PhD
[01:17:45]
It would only represent something if that were applied, you know if those people interacted and motivated the physicians. So yes, it might or might not, depending on what those people did.
[01:18:08]

Tacey Ann Rosolowski, PhD
[01:18:08]
Right. Yeah, sort of it's a delicate balance that the institution has to preserve. I just noticed what the time is, it's a little bit before one. Is it okay if we go a little longer? Okay. I hadn't asked you at the beginning, so I wanted to make sure.
[01:18:25]

Marvin L. Meistrich, PhD
[01:18:24]
Yeah, because I started later, so.
[01:18:26]

Tacey Ann Rosolowski, PhD
[01:18:26]
Okay. I just wanted to make sure your schedule permitted.
[01:18:27]

Marvin L. Meistrich, PhD
[01:18:28]
And I had a little snack before, so.
[01:18:30]

Tacey Ann Rosolowski, PhD
[01:18:30]
Good, good. Is there anything else you wanted to say about the institution at this point?
[01:18:37]

Marvin L. Meistrich, PhD
[01:18:38]
I guess the size of it has become unwieldly, and just kind of the real change in the ambiance. When I came here, actually my first impression was that boy, this is big, but there was kind of enough interactions that made it feel smaller. I mean of course we were all in two wings, the Gimble wing and the Yellow Zone of the main building, so anybody was right nearby. There were places to get together. There was the faculty club at the Anderson Mayfair, which was a social place people went on Friday evenings. I know the institution is trying to create that, but having to create it rather than having it spontaneously occur are two different things.
[01:20:23]

Tacey Ann Rosolowski, PhD
[01:20:26]
What did that more social, easy interacting kind of ambiance, what did that do for the institution?
[01:20:35]

Marvin L. Meistrich, PhD
[01:20:36]
I think people were happier here. They had more close interactions, friends in other departments, and I'm sure it led to collaborative efforts. A lot of it was being close together.
[01:21:02]

Tacey Ann Rosolowski, PhD
[01:21:02]
Meaning physical proximity.
[01:21:06]

Marvin L. Meistrich, PhD
[01:21:07]
Yeah, yeah, and mainly in the labs, the old labs in the main building. We were close. There was someone a couple floors up, we didn't have to have badge access on the elevators.
[01:21:23]

Tacey Ann Rosolowski, PhD
[01:21:23]
Right, right, yeah. You could just run up and see somebody here. Yeah. I've talked to people who have said even department members don't know one another, because it's just so large and so spread out.
[01:21:42]

Marvin L. Meistrich, PhD
[01:21:44]
Yeah, and it also seems like the changes in the ethnic distribution, that people have different priorities.
[01:21:55]

Tacey Ann Rosolowski, PhD
[01:21:57]
What do you mean?
[01:21:57]

Marvin L. Meistrich, PhD
[01:21:59]
It seems like maybe they have, within their group, but it's not -- it's not like everybody in the department goes out to lunch together, that never happens.
[01:22:23]

Tacey Ann Rosolowski, PhD
[01:22:23]
Interesting.
[01:22:24]

Marvin L. Meistrich, PhD
[01:22:24]
We used to have -- and this is a long time ago, just you know, people going out to lunch. And now it seems like most of the junior faculty, they're eating lunch here.
[01:22:50]

Tacey Ann Rosolowski, PhD
[01:22:51]
If they even have time for lunch. I know for clinical people, that's really a challenge.
[01:22:55]

Marvin L. Meistrich, PhD
[01:22:58]
So, and maybe the countries that they come from, they're taught that you don't do that at work, you work.
[01:23:14]

Tacey Ann Rosolowski, PhD
[01:23:15]
Right, yeah, interesting.
[01:23:20]

Marvin L. Meistrich, PhD
[01:23:20]
I'm sure like anyone else, they have their fun, but it seems like during work hours it's more serious.
[01:23:30]

Tacey Ann Rosolowski, PhD
[01:23:31]
Interesting.
[01:23:36]

Marvin L. Meistrich, PhD
[01:23:37]
Though they have good senses of humor. Yeah, so I'd say it's a different culture, and I'd say it's somewhat related to the diversity of people that we have.
[01:24:00]

Tacey Ann Rosolowski, PhD
[01:24:02]
Interesting. Any other observations?
[01:24:10]

Marvin L. Meistrich, PhD
[01:24:12]
And also the size of the institution. It was always easier to get places when we were all in the main building, and the president's office was on the seventh floor and now it's the 20th floor of the Pickens Tower or the mid-campus building.
[01:24:48]

Interview Session: 02
Interview Date: May 2, 2017

Chapter 13
Transitioning to Full Retirement: Institutional Challenges
A: Post-Retirement Activities;

Codes
A: Critical Perspectives;
A: Obstacles, Challenges;
A: Post Retirement Activities;
B: Institutional Processes;
B: Devices, Drugs, Procedures;
B: MD Anderson Culture;
B: Working Environment;

Tacey Ann Rosolowski, PhD
[01:24:50]
Do you have a definite retirement plan? I mean if you want to turn to that.
[01:24:57]

Marvin L. Meistrich, PhD
[01:24:59]
Well, a lot has been floating around this week.
[01:25:03]

Tacey Ann Rosolowski, PhD
[01:25:03]
Oh it has?
[01:25:04]

Marvin L. Meistrich, PhD
[01:25:04]
Yes. So, okay, I officially retired in 2012.
[01:25:13]

Tacey Ann Rosolowski, PhD
[01:25:13]
Oh you did, okay.
[01:25:14]

Marvin L. Meistrich, PhD
[01:25:15]
And I got appointed to modified service. I don't know whether it's 20 percent or 40 percent, it

kind of varied between year and year, but it didn't matter because I did not take any salary, because otherwise, it would just eat up the grant. So that was fine and I was under the old PRS pension plan, so that was very generous and is. So, I really didn't have a need for more money and again, it would have to come from a grant, so I elected to have my modified service without salary. Anyway, earlier this year, and it was made clear in a meeting with the administration this week, is that that's going to end.
[01:26:40]

Tacey Ann Rosolowski, PhD
[01:26:41]
Now, what were these things?
[01:26:41]

Marvin L. Meistrich, PhD
[01:26:42]
Anyone with modified service has to have a minimum, because of the Federal Fair Labor Standards Act, of $23,600, and that's going to be September 1st. And also, an idea that the administration want, for people on a modified service, they want it to be a transition to full retirement.
[01:27:16]

Tacey Ann Rosolowski, PhD
[01:27:17]
Oh, okay, yeah.
[01:27:17]

Marvin L. Meistrich, PhD
[01:27:18]
They said well, that was agreed on when you took the modified service, and I don't remember that. So, they seem to have a timeline for wanting people to fully retire. Anyway, this is going to be a matter of discussion with other people in the administration and we'll see what transpires.
[01:27:45]

Tacey Ann Rosolowski, PhD
[01:27:45]
So it sounds like you don't want to retire.
[01:27:47]

Marvin L. Meistrich, PhD
[01:27:48]
No, correct. I will cut down on work. In fact, I want to do less than I'm doing now, but I kind of

resented that they had to pay me out of the grant. Actually what I'm going to do is I'm going to donate the after tax portion back and I could donate it specifically for that project. But what they said is that if you donate the money to MD Anderson it's tax deductible, but if you donate it for a particular line item at MD Anderson, it's not tax deductible, so I'll donate back 70 percent of what I get, the other will go to Uncle Sam. So, it just seems like they're -- and I could see their point to some extent. You don't want a lot of old people who aren't productive just hanging around, they're not encouraging that. What really bothered me, I thought well, what about people who are emeritus? I looked at the regulations for emeritus positions and it's really the antithesis of what it is at other places. So, according to the regulations, emeritus faculty are not entitled to email access, they're not entitled to IT, you know, all of the things they'll get inside MD Anderson, the library. What the regulations said, we could have physical access to the library during business hours but not online access. So I thought, you know, what emeritus faculty, and I know in other places, they advise people, they mentor students, they mentor junior faculty, postdocs, they collaborate with active scientists on their grants. In some cases, I know emeritus faculty have written grants on their own. The regulations say it doesn't entitle you to office space, not to mention whether it would entitle you to be able to have laboratory space and write grants. Oh, and I got some mixed messages this week with the modified service. At first we were told that as of September, people on modified service, after a certain point, cannot write or participate in any new grants, and then we were told no, that's not the case, so we've got to get that clarified. It just seems like the administration is pushing too hard to get people on modified service out and making emeritus -- not making emeritus appointments attractive, to encourage people to continue to contribute to the institution. This was a disappointment. Anyway, I mentioned the emeritus thing to in fact be representative of the fact that they send -- he was shocked by it too and he'll bring it up with the faculty senate.
[01:32:27]

Tacey Ann Rosolowski, PhD
[01:32:28]
I mean I assume that they're cost-cutting, I mean they're concerned with cost-cutting measures, but yeah, but ah…
[01:32:37]

Marvin L. Meistrich, PhD
[01:32:39]
Email access, and as far as an office, well, I think some institutions say well, if there's space available would depend on the department. There's so many empty offices.
[01:32:57]

Tacey Ann Rosolowski, PhD
[01:32:59]
Yeah, especially now.
[01:32:59]

Marvin L. Meistrich, PhD
[01:33:00]
The office that I vacated two years ago is still empty, and a flyer that I put on the door is still up there.
[01:33:09]

Tacey Ann Rosolowski, PhD
[01:33:10]
Oh my gosh. That kind of thing is pretty disappointing at the end of a career and it just sort of leaves a bad feeling.
[01:33:17]

Marvin L. Meistrich, PhD
[01:33:17]
Anyway, I brought these things up, that I hope MD Anderson will have a better attitude towards it.
[01:33:26]

Tacey Ann Rosolowski, PhD
[01:33:27]
Yeah, no, I think it's important to bring it up. I mean, you're not the first person who has mentioned issues like this. Yeah.
[01:33:36]

Marvin L. Meistrich, PhD
[01:33:37]
And I'd like to see the faculty senate work with the administration. Sometimes the faculty senate are too antagonistic of the administration.
[01:33:46]

Tacey Ann Rosolowski, PhD
[01:33:47]
Do you think that's changed now, with the new shared governance model?
[01:33:51]

Marvin L. Meistrich, PhD
[01:33:52]
I think so. It certainly has put in place, a mechanism for doing this and we'll see how it fares.
[01:34:15]

Tacey Ann Rosolowski, PhD
[01:34:16]
Is there anything else you'd like to add at this point?
[01:34:20]

Marvin L. Meistrich, PhD
[01:34:22]
Is there anything that I… nope. The bottom line is I'm really glad I came to MD Anderson. I don't regret it for a moment. Sometimes that haven't been as good, and I mean in anything this large though, you're going to have conflicts with people. Most people have been really good and supportive and yeah, I've had an excellent career here. I think I've done better here than I could have in other places. The one thing I'm really in favor of, is the seven-year renewal of tenure. When I started, there was no tenure system, we just had annual contracts. And then they instituted a seven-year renewable tenure, which I think is an excellent system. Many institutions, getting -- the first time you get tenure, there's a lot of pressure. That's the most pressure people feel at almost any point in their life, and then after that ah, safe. There have been criticisms of a ten-year system, where MD Anderson said a ten-year system, your first tenure appointment isn't self-strict, because okay, you know, he's got the qualifications, we'll give it to him. I may have been on the tenure committee before and let's see how he performs. You know, there have been people coming up after seven years who just haven't performed and I have no qualms about saying no. Sometimes that was overruled by the president, sometimes not, but you know, you get tenure and so okay for seven years you could -- you don't have to do things right away. You could work on something long-term and hopefully it pans out. You know, and I've seen, after the seven years of faculty members who are in it now, turn in their grant applications, some were given a year or two extension and it turned out very well. So, anyway, I'm really in favor of that system, because I think other places I would have gone, there would have been so much stress those first few years, I might not have made it.
[01:38:12]

Tacey Ann Rosolowski, PhD
[01:38:12]
Right. Well, even as you are talking about your research earlier, I was thinking to myself wow, this is another example of how this kind of research evolves quite slowly, and it may not work on the pace of a tenure clock, a traditional tenure clock. And so having something that's in increments like that can work very well with the type of research that people are doing here.

Well I want to thank you for all your comments.
[01:38:46]

Marvin L. Meistrich, PhD
[01:38:47]
Good. Thank you for giving me the opportunity to talk and voice them.
[01:38:51]

Tacey Ann Rosolowski, PhD
[01:38:52]
No sure, it's been really interesting talking to you and I want to thank you for your time.
[01:38:56]

Marvin L. Meistrich, PhD
[01:38:56]
Okay, good, thank you for doing this, Tacey.
[01:39:00]

Tacey Ann Rosolowski, PhD
[01:39:00]
Yeah, surely, and I just want to say for the record, I'm turning off the recorder at about seventeen minutes after one.