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compared with EM phenotypes (HR3.48; 95% CI, 0.86–14.07; p = 0.080). The number of patients may be quite small and the study should be confirmed in a larger group.

SW04.S16–117
The role of polyamines in the design of anticancer drugs

S. M. Fiuza, A. M. Amado, M. P. M. Marques and L. A. E. Batista de Carvalho
Quimica-Fisica Molecular Faculdade de Ciencias e Tecnologia Universidade de Coimbra, Coimbra, Portugal

Biogenic polyamines (PA's), putrescine, spermidine and spermine, are found in all eukaryotes and most prokaryotes. Owing to their important functions and recognized involvement in carcinogenic processes, they have been studied with a view to develop new anticancer therapeutic strategies. One of this approaches is their use as ligands for heavy metals ions such as Pd(II) and Pt(II), yielding stable polynuclear chelates. Cisplatin, the parent compound of this type (Pt(Cl2(NH3)2) is one of the most widely used antineoplastic agents in clinical practice, but presents drawbacks, such as severe nephrotoxicity and acquired resistance. The coordination of biogenic amines to metal ions was found to lead to a significant increase of antitumour effects, probably due to a more efficient interaction with DNA.

The present study reports the use of these compounds in de design of effective anticancer agents toward human breast cancer cell lines.

Another approach is to test the effect of the naturally formed phenolic conjugates of polyamines, widely present in plants – phenolamides, hydroxycinnamic acid amides (HCAA) or phenylamides. These are either products of the polyamine catabolism or storage forms of polyamines or phenolic compounds. This type of phytochemicals is regularly consumed in the diet and have been characterised as bioactive agents displaying antiviral, antibacterial, antifungal, antioxidant and radical scavenging activities.

This work describes the study of some pure phenolamides, from their characterisation by physical-chemical techiques (e.g. vibrational spectroscopy) to the determination of their biodistibution in human cells, aiming at an understanding of the tight structure-activity relationships (SAR's) that underlie and control their biological role. Up to these days, most of these phytochemicals have been studied in the form of extracts and never in the isolated form, at the molecular level.

SW04.S16–118
Triterpene saponosides from *Lysimachia ciliata* – new perspective in cancer therapy *in vitro* studies

P. Koczurkiewicz[1], I. Podolak[2], K. Wojcik[1], J. Czyz[1], A. Galanty[2], Z. Janeczko[2] and M. Michalik[1]
[1]*Department of Cell Biology, Faculty of Biophysics, Biochemistry and Biotechnology, Jagiellonian University, Krakow, Poland,*
[2]*Department of Pharmacognosy, Faculty of Pharmacy, Jagiellonian University Medical College, Krakow, Poland*

Despite of fact that process of carcinogenesis is well known and its mechanism is extensively studied there is still no effective cure for cancer disease. Traditional cancer chemotherapy frequently uses cytotoxic agents to destroy cancer cells at the expense of normal host tissue. Very important is search new chemotherapeutics agents that are effective will be incorporated with an outbreak of disease with minimal effect on healthy tissue. The quest for new drugs, new therapeutics strategies are needed. Triterpenoid saponosides are secondary metabolites derived from higher plants. Saponosides can be found in all parts of higher plants including roots, leafs, flowers and buds. Biological activities of saponins are well known and they include: antimicrobial, antiinflamatory, expectorant as well as anticancer action. Published data suggest the correlation between chemical structure of saponosides and their biological activities, however the exact influence on cancer cells is yet unknown. Subtle changes in substituents in the main chain of the chemical structure of saponins determine different biological activity.

Methods: In this study we analyzed saponosides with different chemical structure and compared their impact on the cancer and normal cells (Du-145 human prostate cancer cell line with medium metastasis potential, PC3 human prostate cancer cell line with high metastasis potential, PNT2 normal prostate cell line). Analysis of cells vital function include proliferation, morphology, invasiveness, mechanism of cell death, migration and cytoskeleton organization as well as cell elasticity.

Results: Preliminary result of our study indicate that these saponosides have a high selectivity in their effect on the examined cells and what is more the effect of studied saponosides is more pronounced on cancer cells than effect of mitoxantrone- commonly used in cancer therapy drug, in contrast to normal cells.

Conclusions: Triterpene saponosides are very interesting chemical compounds, their effect on cancer cells is promising, but requires further detailed research. Our data suggest that subtle changes in the chemical structure of saponins have a significant impact under biological role.

SW04.S16–119
Association of the MTHFR C677T polymorphism with toxicity in breast cancer adjuvant anthracycline-based treatment

N. Svergun, N. Khranovska, L. Syvak, H. Gubareva, S. Lialkin and N. Klyukovska
National Cancer Institute, Ministry of Public Health of Ukraine, Ukraine

Introduction: Methylenetetrahydrofolate reductase (MTHFR) is a key enzyme in the folate metabolism pathway. MTHFR C677T polymorphism leads to amino acid substitution Ala222Val. As a result of this mutation, heterozygous and homozygous carriers of the 677T allele variant have a 30–40% and 60–70% reduced enzyme activity respectively. Recently, the MTHFR polymorphism was found to modulate the chemosensitivity of cancer cells to chemotherapy. Furthermore, the 677T variant is linked to severe toxicity during adjuvant treatment of breast cancer with cyclophosphamide, methotrexate, and 5-fluorouracil. The aim of our study was to reveal the association of the MTHFR C677T polymorphism with toxicity in breast cancer adjuvant anthracycline-based treatment.

Materials and methods: The case group comprised 54 patients with breast cancer. All patients received 4–6 cycles of anthracycline-based chemotherapy regimen with 5-fluorouracil, adriamycin, and cyclophosphamide (FAC). Treatment toxicity was assessed using NCI-CTC. Genomic DNA from peripheral blood was analyzed for identification of genotypes of the MTHFR using Allelic Discrimination Real Time PCR.

Results: During chemotherapy breast cancer patients developed some degree of gastrointestinal, hematological and cardiovascular toxicity. Cardiovascular toxicity was observed in 20% of patients. It was noticed that heterozygous and homozygous carriers of the 677T allele variant have a significantly higher risk for cardiovascular toxicity during chemotherapy administration compared to wild genotype carriers (OR = 4.48, 95% CI = 1.08–18.55, p = 0.03). Severe hematological and gastrointestinal toxicity developed in 13% and 39% of the cases, respectively. The pre-