

NANO MICROBE ZAPPER (NMZ): A NOVEL ECO-SAFE NANOPARTICLE MEDIATED ANTIMICROBIAL KILLER

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NMZ developed at University of Missouri



Proprietary Formulations: Patent Pending (4 Countries)

NPV, US Patent number : 10/931,174

Exclusively licensed to Nanoparticle Biochem, Inc (NBI)

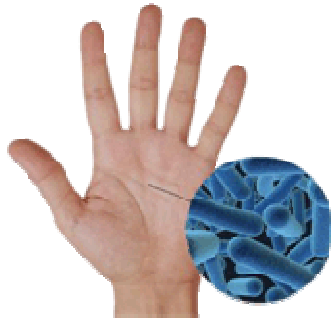


HARMFUL MICROBES IN YOUR DAILY LIFE

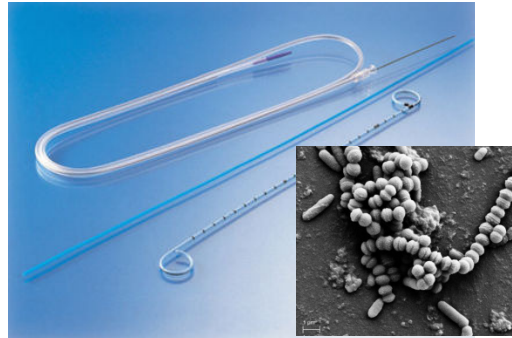


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MICROBES AFTER WASHING HAND



BACTERIA ON INDWELLING MEDICAL DEVICE



- ❖ Microbes in hand: H1N1 flu and spread of disease.
- ❖ Biofilm: FDA says biofilm is a significant cause of hospital-acquired infections and related deaths. CDC says biofilm is responsible for 65% of all hospital-acquired infections.
- ❖ Molds: Produce airborne toxins lead to breathing difficulties, memory and hearing loss, dizziness, flu-like symptoms, and acid reflux.



BLEACH DOES NOT KILL MOLD!

Estimated total cost burden: \$450 Billion (Source: Market Research)

MARKET POTENTIAL



- ❖ Surface Antimicrobial: Health and Hygiene monitoring report that bacterial infections in human populations across the globe is increasing at an alarming pace of 15-20% year by year (Source: 2009 Health and hygiene report).
Market Potential : \$ 25 billion (Frank and Sullivan).
- ❖ Biofilm Antibacterial: 1 in 20 patients hospitalized will develop biofilm related infection. This costs \$38,600 for hospital care and \$58,000 for post-operative care per patient. (Source: Infection rate today, 8, 2004, 32).
Market Potential: \$ 2 billion (Frank and Sullivan) and growing 20% every year.
- ❖ Antimold: According to the Centre for Disease Control (CDC), ~1.7 million mold related diseases happen each year in the US alone. Eradication of mold is clearly an unmet hygienic need of global proportions. In US, the problem is acute (Source: CDC) Market Potential: \$ 500 million (Frank and Sullivan).

NMZ : PROTECTION AGAINST HARMFUL MICROBES



ANTIMICROBIAL PLATFORM TECHNOLOGY



- ❖ Multi-Surface Antibacterial, Antiviral, and Antifungal
 - ❖ Kills Bacteria in Biofilms –the only technology of this kind in the world
 - ❖ Removes Mold and Prevents Recurrence
-
- ❖ Proprietary Formulations: Patent Pending
 - ❖ Patent is protected in the U.S. and other countries including Germany, Japan, and Canada
 - ❖ Developed at MU and licensed to Nanoparticle Biochem, Inc.

NMZ : APPLICATIONS



- ❖ Acts in less than 30 seconds.
- ❖ Removes microbes and protect the surface.
- ❖ No chlorine. Water based and ideal for use in health care facilities, hospitals, schools, restaurants, restrooms and public places



- ❖ Penetrates impenetrable bacterial biofilms, where traditional anti bacterial agents failed to be effective.
- ❖ Prevents and destroys germs in slippery biofilms to give a clean and disinfected surface.
- ❖ Easy to use spray applicator.

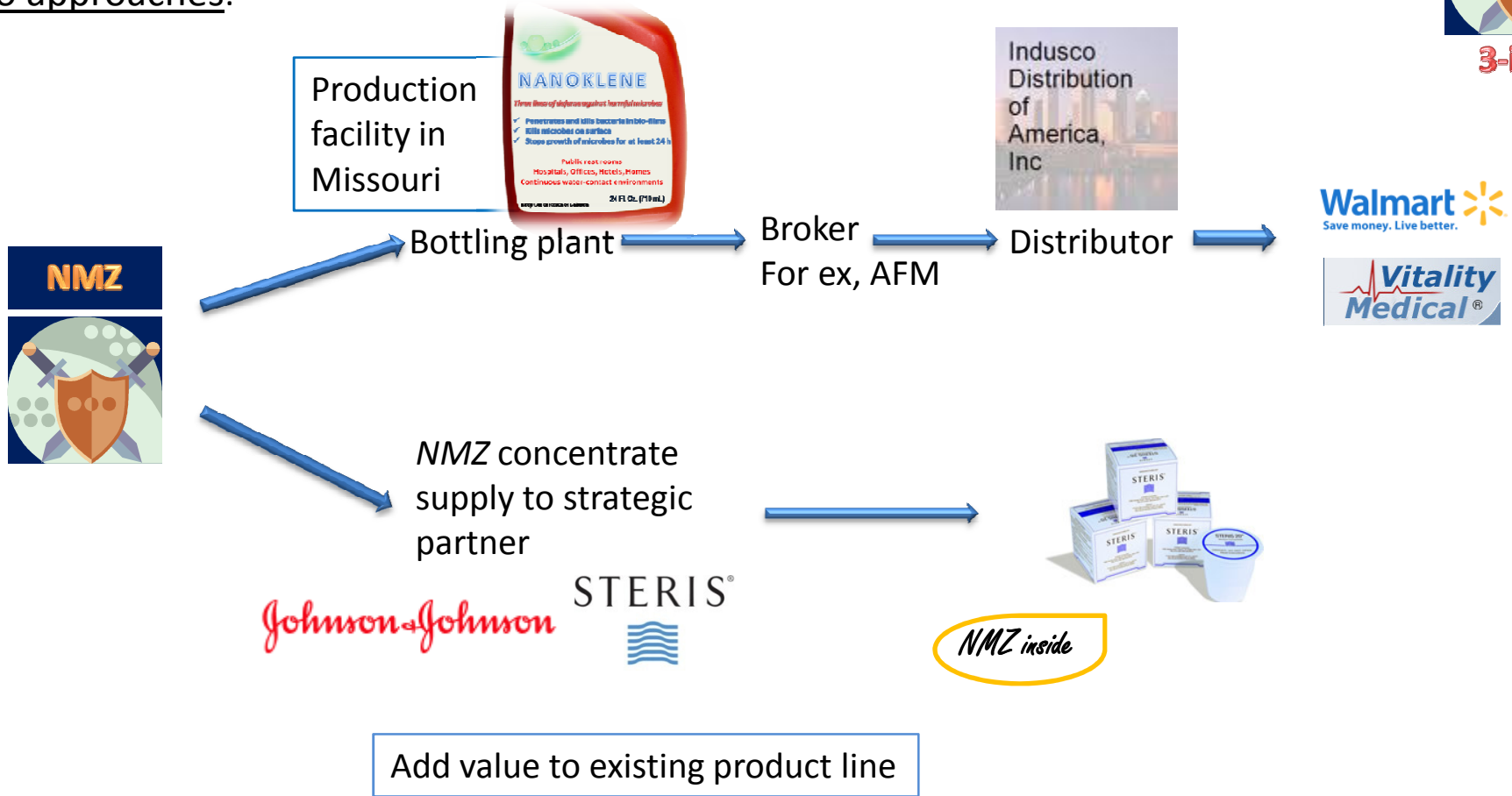


- ❖ Eradicates and prevents mold growth.
- ❖ Non-toxic, no fumes, and water based.
- ❖ Ideal for use in schools, public/private dwellings, and flood affected areas

NMZ : SALES AND DISTRIBUTION PLAN



Two approaches:



NMZ : COMPETITIVE LANDSCAPE



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High



Ease of use

Low



High

Against biofilms



NMZ : BUSINESS MODEL

NBI will manufacture the *NMZ* agents in its facility in Missouri.

However, marketing and distribution will be handled through INDUSCO.

A long term contract will be signed by these two companies.

Revenue Estimate: Joint venture between NBI and investor.

Revenue Sharing: 50% each between NBI and investor.


NBI Role: Technology sharing, QC, continuous product upgrade. Investor

Role: Marketing and Distribution.

Production	= \$0.20
R & D Legal	= \$ 0.10
Distribution	= \$ 0.20
Marketing	= \$0.20
Admin	= \$0.05
Broker	= \$0.05
Royalty	= \$0.05
Profit	= \$0.25
Transport	= \$0.05
Supermark	= \$0.10



Price per Gallon = \$1.25

NANOMOLD ZAPPER (NMZ) WILL BE SUPPLIED IN 1 GALLON QUANTITIES			
ZONE	SALES PREDICTION: NO OF NMZ UNITS TO BE SOLD		
	REVENUE	NBI'S REV. 	Investors Rev.
EAST COAST	13,000,000	6,500,000	6,500,000
MIDWEST	11,000,000	5,500,000	5,500,000
NORTH/SOUTH	10,500,000	5,250,000	5,250,000
WEST COAST	13,000,000	6,500,000	6,500,000
CALIFORNIA	12,500,000*	6,250,000	6,250,000

**California state regulations do not allow the sales to commence after conditional approval from US EPA.*

**EXPECTED REVENUE FOR
NMZ FOR FIRST YEAR OF
COMMERCIALIZATION:
\$60 MILLION
(Calculated on basis of 1%
market penetration)**



NMZ : CURRENT STAGE



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Investment Required

Basic research	Proof-of-concept	Commercial scale	Toxicity in small and large animals	Dermal toxicity	Aquatic toxicity	Conditional approval from EPA	Commercialization of NMZ
May 2006	June 2007	November 2007	Jan 2008	August 2008	2009-2010	2011	2012

Funded by State and Federal funds

Funded by UM's Fast Track Economic Development Program



NMZ : INVESTMENT OPPORTUNITY



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- ❖ **\$5 MILLION –INVESTMENT; MILE STONE BASED; 1YEAR**
- ❖ **INVESTMENT FOR CONDITIONAL EPA APPROVAL PROCESS AND PRODUCTION PLANT**
- ❖ **50 % OWNERSHIP STAKE**
- ❖ **NO ADDITIONAL ROUNDS OF INVESTMENT NEEDED**
- ❖ **RETURN FOR INVESTMENT:**
2ND YEAR BREAK EVEN; AFTER 3RD YEAR MORE THAN 50 % RETURN
(5 YEAR IRR OVER 90%)

NMZ : TEAM



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Professor Henry White
CEO
Nanoparticle Biochem, Inc

} More than 30 years of experience. Discovery stage to commercial market.

Professor Kattesh Katti
Curators' Professor, UM

} More than 25 years of experience in product development and research. Project leader. Discovery stage to commercial market.

Dr. Raghuraman Kannan
Assistant Professor of
Radiology

} More than 15 years of experience in research. Working towards commercialization of products. Track record of bringing investment to NBI.

Dr. Anandhi Upendran
Director of Research
Nanoparticle Biochem, Inc

} More than 15 years of experience in chemistry. Directing research division at NBI. Two SBIR Phase I contract and One SBIR Phase II contract.

Ms. Kavita Katti
Senior Scientist, UM

} More than 20 years of experience in inorganic and radiochemistry. Expert in analytical chemistry for quality control

Independent antimicrobial efficacy analysis: US Defense Labs, ND.

