

Joint Event on



International Conference on

OBESITY AND WEIGHT MANAGEMENT

&

International Conference on

VACCINES AND IMMUNOLOGY

June 28-29, 2018 | Amsterdam, Netherlands

DAY 1

Special Session

Euro Obesity 2018 & Euro Vaccines 2018



Pierre A Morgon

MRGN Advisors, Switzerland

Biography

Pierre A Morgon is the CEO of MRGN Advisors and regional partner for Switzerland at Mérieux Développement. He served as a Chairman of the Board of Virometix, as well as Non-Executive Director to the Boards of Theradiag, of Eurocine Vaccines, of Alma Biotherapeutics and of Vaccitech. He has over 30 years of experience in the global life science industry, especially with vaccines and immunotherapy, at the helm of international operations, in C-level positions at global level and as CEO of start-ups. He works as a Lecturer in several MBA programs in world-class business schools and in life science conferences, as well as to the Mass Challenge Biotechnology incubator in Switzerland. He holds a Doctor of Pharmacy, a master's in Business Law and an MBA. He is also an alumnus of INSEAD and IMD.

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NOVEL TECHNOLOGIES CAN SUCCESSFULLY ACTIVATE POSITIVE BEHAVIORS OF STAKEHOLDERS INVOLVED IN VACCINE PURCHASING AND USAGE

The vaccine segment is anticipated to be one of the fastest growing one of the healthcare industry and several leading firms have stepped up vaccine investments in recent years. Unlike therapeutic agents, vaccines are administered to healthy individuals only once or very infrequently during a life time. Vaccines generate well-documented positive externalities, yet their poor awareness and acceptability among vaccine end-users may contribute to resurgence of transmissible diseases and consequently trigger governmental interventions such as mandating vaccination. In addition to technical and clinical development per the highest quality standards, bringing new vaccines to market requires carefully orchestrated programs targeting the multiple types of stakeholders along the entire value chain and addressing their respective purchasing behavioral drivers. Against a backdrop of anti-vaccination buzz and vaccine fatigue, successful global launch and sustainable usage of a vaccine requires the development of a multi-pronged strategy addressing all aspects in relation to acceptability (e.g. the motivation to immunize despite the quasi-disappearance of the disease), accessibility (e.g. supply chain services), availability (e.g. mechanisms ensuring reliability of supply) and affordability (e.g. tiered pricing policy taking country differences in per capita income into account). Leveraging novel technological advances can positively influence the ability to activate these levers successfully.



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SESSIONS

June 28, 2018

Obesity | Vaccine & Immunization | Cancer Vaccines & Immunotherapy | Immunology of Infectious Diseases | Human Vaccines-Infectious & Non-Infectious | Veterinary vaccines | Body Mass Index | Diabetes and Obesity | Obesity Reduction | Nutrition

Session Introduction

Session Chair

Pierre A Morgon
MRGN Advisors
Switzerland

Session Co-chair

Damien Byas
Center for Organizational
Research, USA

Title: Nanoparticles, as antigen delivery system of antigens, for a nasal vaccine against toxoplasmosis

Didier Betbeder, University Lille 2, France

Title: Enhancing antibody serodiagnosis on peptide microarrays using a controlled multipresentation strategy

Marina Cretich, Consiglio Nazionale Delle Ricerche, Italy

Title: Characteristics of montanide™ ISA 51 VG adjuvant designed for therapeutic cancer vaccines

Maria Lazaro, Seppic, France

Title: An investigation of internal and external locus of control measures and how these influence health beliefs regarding weight control and obesity in two South Wales populations

Rhiannon Harris, Cardiff Metropolitan University, UK

Title: Type 2 diabetes and obesity in children

Joseph Foreman, Fit & Healthy Solutions Limited, UK

Title: Walking like a means of the lifestyle changes and an obesity reduction

Vaclav Bunc, Charles University, Czech Republic

Title: Adipokines may mediate the relationship between resting metabolic rates and bone mineral densities in obese women

Khadijeh Mirzaei, Tehran University of Medical Sciences, Iran

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VACCINES AND IMMUNOLOGY

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Didier Betbeder, Asian J Biomed Pharmaceut Sci 2018, Volume 8 | DOI: 10.4066/2249-622X-C1-002

NANOPARTICLES, AS ANTIGEN DELIVERY SYSTEM OF ANTIGENS, FOR A NASAL VACCINE AGAINST TOXOPLASMOSIS**Didier Betbeder**

University Lille 2, France

Nanoparticles can act as adjuvant as they are able to deliver antigens to immune cells, therefore increasing their immunogenicity. A better knowledge of the mechanisms of interaction with the biological fluids and cells is necessary to fully understand their potential as delivery systems. Most of pathogens access to human body through mucosal, therefore it is interesting to mimic infection to elicit a protective immunity. In this presentation we will describe the mechanisms of interaction of nanoparticles with airway mucosa cells and their ability to deliver antigens within cells. Furthermore, their interest in term of antigen formulation, stability and efficacy against *Toxoplasma gondii* infection will be presented.

BIOGRAPHY

Pr Didier Betbeder has 25 years of experience in drug delivery using colloids, ranging from basic research to clinical studies. Working with the World Health Organisation he obtained his PhD in 1988 on drug targeting to treat sleeping sickness, before spending two years as a post-doctoral fellow at the University of Warwick (England). He was then engaged by Bio-Europe, a company specialising in biocatalysis, before joining Biovector Therapeutics (France) as Research director from 1992 – 2001. He is Professor at the University of Artois and Lille 2 since 2001, his research focusing on the development of innovative nanoparticles based on polysaccharide and phospholipid assemblies. He developed from research to clinical development a technology based on polysaccharide nanoparticles supporting a phospholipid bi-layer, these nanoparticles were found to have a strong mucosal residence and good candidates for vaccine applications.

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ENHANCING ANTIBODY SERODIAGNOSIS ON PEPTIDE MICROARRAYS USING A CONTROLLED MULTIPRESENTATION STRATEGY

Marina Cretich

Consiglio Nazionale Delle Ricerche, Italy

Here we present a workflow enabling the rapid delivery of efficient immunoassays for different diagnostics contexts which expands the current limits of peptide-based serodiagnosis on microarrays. Our strategy starts from the use of computational tools for accurate immune-reactive peptide design; exploit chemo-selective strategies for optimal probes presentation on sensing surfaces using clickable polymeric coatings and finally generate peptide chips for fluorescence microarrays and SPR imaging. We will show how the rigorous control of probe design, orientation and surface density enabled by our platform positively impacts the diagnostic accuracy of antibody detection in serum of *Burkholderia* infected patients. Furthermore, we will compare different strategies of peptide multiple presentation to increase immunoreactivity in the context of allergy screening and for functional mimicking of discontinuous epitopes of NS1 protein for Zika virus diagnosis.

BIOGRAPHY

Marina Cretich has graduated in Biological Science and specialisation in Molecular Biology at University of Milano in 1998. In 2003, she has been appointed as Research Scientist at the Institute of Molecular Recognition Chemistry of the National Research Council of Italy where she is currently working as Project Leader of the protein-based assays division within the analytical microsystems group. She has been responsible of national research contracts and staff scientist in several EC funded projects. Her scientific activity, documented by more than 70 articles on peer reviewed journals, covers the field of protein and peptide microarrays for diagnostics, protein-protein interaction, biomarker discovery/validation; biofunctionalization and bioconjugation methods for micro-analytical systems; system integration for biosensing, microfluidics and point-of-care devices.

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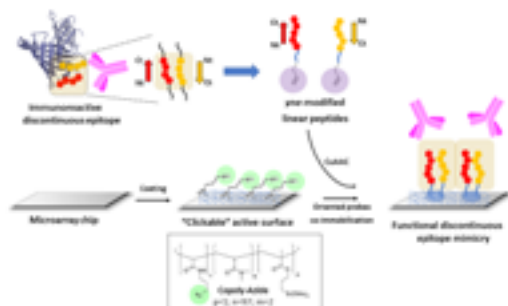


Fig.1

Strategy to enhance immunoreactivity by spatially controlled co-presentation of peptidic probes on microarray surfaces through "click" reaction of yne-modified peptides on Copoly Azide.

CHARACTERISTICS OF MONTANIDE™ ISA 51 VG ADJUVANT DESIGNED FOR THERAPEUTIC CANCER VACCINES

Maria Lazaro

Seppic, France

Therapeutic cancer vaccines are one interesting alternative to treat cancer by active immunotherapy. The use of well-defined overexpressed tumor antigens is linked with weak and short term immune response. To improve the immune response induced antigens may be associated with enhancers such as adjuvants. Water-in-oil (W/O) emulsions such as Montanide™ ISA 51 VG represent an interesting option for immunotherapy vaccines for which potent adjuvants are required. CIMAVAX-EGF vaccine to treat cancer has already been authorized in Cuba and many others latin american countries, it's also in late state in Europe and Asian countries which efficacy has been largely proven in patients suffering from lung cancer (NSCLC). Vaccines based on Montanide™ ISA 51 VG interestingly enhance the immune response thanks to a depot effect conferred by this kind of adjuvant at the injection site. This renders a danger signal that increases and prolongs the interaction with antigen presenting cells. These interactions lead to an enhanced CD8+ and CD4+ activation and promote production of IFN, TNF α , IL-2. Additionally, the use of adjuvant enhances the memory T-cells, in particular the central memory T-cells. Taken together, these results show that vaccines based on Montanide™ ISA 51 VG can induce a potent specific cytotoxic T response and a significant increase in antibody titers with the development of polarized Th1 responses.

BIOGRAPHY

Maria Lazaro is a Pharmacist from Complutense University of Madrid. He/She(according to the author's gender) holds advanced master's in Biotechnology and Pharmaceutical Management works for Seppic in Human Biologicals department (adjuvants for vaccines and excipients for injectables) since 2012.

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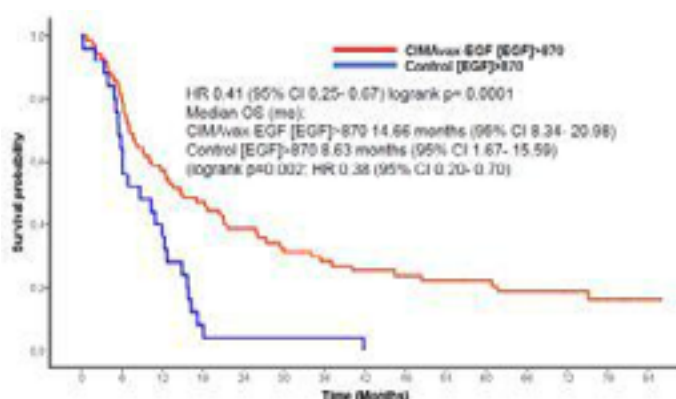


Fig.1: Kaplan–Meier curve in patients with high [EGF] at day 0. MST for vaccinated patients was 14.66 months (95% CI, 8.34–20.98) versus 8.63 months (95% CI, 1.67–15.59) for controls.

AN INVESTIGATION OF INTERNAL AND EXTERNAL LOCUS OF CONTROL MEASURES AND HOW THESE INFLUENCE HEALTH BELIEFS REGARDING WEIGHT CONTROL AND OBESITY IN TWO SOUTH WALES POPULATIONS

Rhiannon Harris

Cardiff Metropolitan University, UK

The Welsh Health Survey (2015) found that 59% of adults in Wales are either overweight or obese, with 24% being classified as obese. Obesity is a risk factor for a wide range of chronic conditions, diabetes, certain cancers, hypertension and is a preventable cause of disease and mortality (WHO, 2004). Data from the Welsh Health Survey (WHS) (2015) indicate that most adults in Cwm Taf are either overweight or obese. Rates of overweight and obesity in Merthyr Tydfil have increased to 67% and to 64% in Rhondda Cynon Taf from rates of 60% found in the previous 2010 WHS. In less deprived areas such as Monmouthshire and the Vale of Glamorgan rates of overweight and obesity are 53% and 52% respectively, these have not changed significantly since the 2010 Welsh Health Survey. Targeted weight loss programmes seem to be making little impact on the rates of obesity in these populations (James, 2016). Morrison *et al* (2010) found in Glasgow that individuals from the most deprived areas in a study were half as likely to lose weight and complete weight loss programmed compared to those from the most affluent areas. The reasons for this are not fully understood. It is important to investigate the relationships between locus of control, health beliefs and self-efficacy in relation to overweight or obesity and weight control to understand how it can be managed. A review by AbuSabha and Achterberg (1997) investigated papers on the relationship between self-efficacy and locus of control for nutrition and health related behaviour. Therefore, this review will focus on papers published since 1998, examining the tools and methods used to research these relationships.

BIOGRAPHY

Rhiannon Harris is a Course Director and Senior Lecturer for the MSc/PG Diploma in dietetics course in Cardiff Metropolitan University. She has worked previously as a Clinician within NHS.

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Note:

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TYPE 2 DIABETES AND OBESITY IN CHILDREN

Joseph Foreman

Fit & Healthy Solutions Limited, UK

Psalm 119:1 "*Blessed are the undefiled*" this means today, that we have allowed our children to become people eating processed/non-organic materials and creating what is called (Auto-Intoxication) of the digestive system. When we, as humans eat, ingest and begin to digest organic plant food, natural meats, fishes and foods from grains, pulses, fruits and the but family; we can look forward to our bodies being at optimum level, full functionality for vitality and best health possible. Processed food however, has overtaken healthy choices by some margin (no. not yet known data wise), but suffice to say, we as adult and careers for the next generation have caused poor habit-forming issues to take hold of our youth today; thus, leading towards issues such as: liver health going down, Yes! Type 2 diabetes in children as young as nine have been reported on the western hemisphere as well...but what are we doing about this scourge? The author feel that we should begin by creating fun, entertaining apps, ways to get kids/children fit, use technology such as Snapchat to create functional health platforms and keep our kids from today's sicknesses and lifestyle diseases that can lead towards things such as: neuropathy, liver failure, stroke/cancers of various types and more (common in advanced type 2 diabetes in adults). The need to educate nations of food poverty (not lack of wealth) such as: some middle eastern nations, most of sub Saharan Africa, Mexico and the Yucatan peninsula as well the Caribbean and India along with Pakistan. The author's main point is to raise awareness and educate on the topic of processed food versus organic food as swiftly as possible, create a mastermind group to help me with this and make real change for the worlds next generation of adults.

BIOGRAPHY

Joseph Foreman is a qualified personal Trainer, Nutritionist, GP Referral Exercise Specialist. After seeing a TEDx talk by the UK Chef Jamie Oliver, he overcame with the desire to create a business and legacy to combat diabetes as well as obesity in children, and adults; to educate people from nations that suffer from food scarcity and poverty organic food education wise.

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Note:

WALKING LIKE A MEANS OF THE LIFESTYLE CHANGES AND AN OBESITY REDUCTION

Vaclav Bunc

Charles University, Czech Republic

Among people who do exercise, walking is the most popular form of physical activity. Walking is a weight-bearing form of aerobic exercise that can be easily integrated into one's daily life and it is frequently recommended as a way to help protect against health problems and low working and leisure capacity. This study summarizes the possibilities of walking as a toll influencing body composition, aerobic fitness and motor performance. Following the intervention program lasting five months with a 1000 kcal energy intensity in the senior women, 1500 kcal in middle-aged men and 2000 kcal for children, composed of at least 85% walking, pointing it significant changes in fitness and body composition parameters. Body mass was significantly reduced by 13.6% of obese children and middle-aged men. On the contrary, senior's women body mass was increased by 3.1%. Fitness that was characterized by peak oxygen uptake was improved from 13% (in senior women and obese children) to 17% (middle age men). Similarly, was significantly altered the engine performance – the maximal speed of walking on the treadmill about 11% in senior women and obese children and about 15% in middle aged men. The percentage of body fat was decreased by 1.6% in senior women and about 16.8% in men of middle age. Together with these variables were significantly improved the predispositions for physical and workload evaluated by ECM/BCM coefficient. The lowest mean chase was found in middle age men (4.8%) and the highest in senior women (10.8%). It may be that walking in the range of 7000 these 10000 steps per day is able to remove the movement in contemporary deficit population, which is due to present lifestyle and may be used in majority population for improvement of health predispositions and for improved state of physical fitness.

BIOGRAPHY

Václav Bunc is a PhD holder from the Technical University Prague, Professor in the Exercise Physiology on Charles University Prague. His main topics of research involves: evaluation of physical fitness, exercise physiology, obesity reduction, functional and physical testing in laboratory and field, body composition, BIA methods, moving regimes for prevention in cardiac and obese patients. He is the first author to have more than 400 items in scientific journals. He is a member of Czech and International Scientific Societies.

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Note:

ADIPOKINES MAY MEDIATE THE RELATIONSHIP BETWEEN RESTING METABOLIC RATES AND BONE MINERAL DENSITIES IN OBESE WOMEN

Khadijeh Mirzaei, Moradi S, Abdurahman AA and Keshavarz SA

Tehran University of Medical Sciences, Iran

Introduction: The researchers sought to test the possible link between resting metabolic rate and bone mineral density through four adipokines. Participants with lower resting metabolic rate (RMR) per kilogram demonstrated higher total bone mineral density (BMD), total T-score, and total Z-score. Omentin-1 had a mediatory effect on the relationship between RMR/kg of body weight and bone parameters. The previous results of studies regarding the links between obesity and bone health are controversial. For this reason, the researchers sought to test the possible link between RMR and BMD through the following four adipokines: vaspin, retinol binding protein 4, angiopoietin-like 6 (ANGPL6), and omentin-1.

Methods: We enrolled 312 obese Iranian women ($30 \leq$ body mass index <40) in this cross-sectional study. In order to examine the association of serum adipokine levels with RMR and BMD, the participants were grouped based on RMR per body weight. Body composition, dietary intake, bone mineral density, and resting metabolic rate were assessed in all participants. Serum adipokine levels were quantified by the enzyme-linked immunosorbent assay (ELISA) method.

Results: Low levels of RMR/kg were strongly associated with higher weight, body mass index, fat mass, and visceral fat levels. In fact, participants with an RMR/kg of body weight <20 kcal/24 h/kg were more obese ($p < 0.05$). Another noteworthy finding was that participants with lower RMR/kg demonstrated higher total BMD, total T-score, and total Z-score. Our results showed that omentin-1 had a mediatory effect on the relationship between RMR per kilogram of body weight and bone parameters ($p < 0.05$). Nevertheless, other adipokines such as vaspin, retinol-binding protein 4 (RBP4), and ANGPL6 did not affect the relationship between RMR and BMD ($p > 0.05$).

Conclusions: The inhibitory effect of omentin-1 on TNF-alpha seems to be able to reduce the amount of circulating leptin as adipokine, affecting energy expenditure and improving bone loss induced by estrogen deficiency and controlled effect of RMR on BMD.

BIOGRAPHY

Khadijeh Mirzaei is working as a Professor in Department of Community Nutrition at Tehran University of Medical Sciences, Iran.

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DAY 2

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SESSIONS

June 29, 2018

Obesity | Nutrition | Obesity Reduction | Bariatric Surgery | Diabetes and Obesity | Genetics of Obesity | Immunology of Infectious Diseases | Vaccine Adjuvants & Delivery technologies | Human Vaccines-Infectious & Non-Infectious | Veterinary Vaccines

Session Introduction

Session Chair

Vaclav Bunc
Charles University
Czech Republic

Session Co-chair

Imran Saleem
Liverpool John Moores
University, UK

Title: The relationship between somatic morbidity and severe obesity: Case-control study

Marja Koski, University of Helsinki, Finland

Title: Obesity in indigenous peoples in colonized countries

Rashmi Dixit, Australasian College of Travel and Tropical Medicine, Australia

Title: Short-term changes in cardiovascular hemodynamics in response to bariatric surgery and weight loss using the Nexfin® non-invasive continuous monitoring device

Sjaak Pouwels, Franciscus Gasthuis & Vlietland, Netherlands

Title: Lung Mucosal Delivery of Nanocarrier Pneumococcal Vaccine

Imran Saleem, Liverpool John Moores University, UK

Title: Immune responses of mice immunized with HBsAg formulated in naloxone/alum mixture: Comparison to fendrix vaccine

Mohammad Hossein Yazdi, Tehran University of Medical Sciences, Iran

Title: Temperature data analysis of the vaccine cold chain system in northern part of Thailand

Kannika Thiankhanithikun, Chiang Mai University, Thailand

Title: Assessment of the risk of contamination with BVD virus in preparation of veterinary rabies vaccine

Masoud Ghorbania, Pasteur Institute of Iran, Iran

THE RELATIONSHIP BETWEEN SOMATIC MORBIDITY AND SEVERE OBESITY: CASE-CONTROL STUDY

Marja Koski

University of Helsinki, Finland

This study investigated the relationship between somatic morbidity and obesity in severely obese retired individuals using the case-control method. The subject group consisted of 112 individuals receiving a permanent disability pension primarily due to obesity. Male and female controls were selected separately, with five controls for male subjects and three controls for female subjects. The controls were matched with the subjects according to place of residence, age, time that pension was granted, and occupation. The statistical analyses included χ^2 tests, means, t-tests for paired variables, a conditional logistic linear model, correlation coefficients and the percent distributions. All cases and controls, whom were 253, was interviewed by researcher. At the time of personal examination, the mean weight of the subjects ($n=75$) was 106.2 kg (SD 18,0 kg) and the controls 72.3 kg (SD 14.3 kg). At the start of pensions, the mean weight of the subjects was 106.6 kg (SD 20.0 kg) and the corresponding weight for the control group was 70.2 kg (SD 14.7 kg). Of the female subjects 20.5% had been overweight during childhood, 4.5% had been overweight during adolescence and 72.7% had been overweight during adulthood. The similar numbers of male subjects were during childhood 42.1%, during the adolescence 5.3% and during the adulthood the number was 53.6%. Among the subjects, 91% (68) had been given a secondary somatic diagnosis by the Social Insurance Institution. Sixty percent of the subjects had a third somatic diagnosis. Of the subjects, diagnostic codes diseases of the musculoskeletal system and connective tissue were the most common as a second diagnosis, accounting for 38%. The large prevalence of musculoskeletal disorders (totaling 63%) among those pensioned primarily because of obesity is noteworthy. Diabetes turned out to be an additional risk in contributing people to retire prematurely. The opinion of researchers is, that all individuals who have severe obesity should be examined by the doctor, who have psychiatric education.

BIOGRAPHY

Marja Koski has completed her PhD from University of Helsinki, Finland. She is Psychiatrist in city of Helsinki Health department and Central Hospital in University of Helsinki. She has wide experience in General Psychiatry and Child Psychiatry, and also she is a member of Zonta International, Finnish Federation of Graduate Women.

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Note:

OBESITY IN INDIGENOUS PEOPLES IN COLONIZED COUNTRIES

Rashmi Dixit

Australasian College of Travel and Tropical Medicine, Australia

Present an overview of obesity amongst colonized populations during the nutritional transition, with a focus on Indigenous Australians, and the interplay between genetics and environment. Indigenous Australians have higher rates of obesity (29%-86%) than other Australians (17%), plus higher levels of body fat for a given BMI, with its attendant cardiovascular risks. Eliciting aetiology of obesity is highly controversial. Studies that elicit no difference in calorie intake or macronutrient ratios between thin and fat people within a population appear to suggest a genetic aetiology. However, case-control studies cannot reliably establish causality of a ubiquitous exposure. The comparison between two different time points or geographical locations has shown the role of drastic changes in calories and macronutrient profiles in creating upheavals in metabolic health. Genes load the gun, but the environment pulls the trigger. Those with hunter-gatherer lifestyles that have rapidly and recently been subject to colonization are particularly prone to obesity and diabetes. The 'thrifty genotype' hypothesis suggests that insulin resistance conferred a selective advantage during times of food paucity. These genetic adaptations became counter productive once the food environment changed. A meta-analysis demonstrated that lower carbohydrate, higher fat diets work best in those who are insulin-resistant, as in many indigenous populations in developed countries. Fascinating experiments in which Indigenous Australians reverted to pre-colonial diets demonstrated weight loss and reversal of type 2 diabetes. This suggests that supplanting their traditional diets with modern processed diets has been catastrophic for the metabolic health of indigenous Australians.

BIOGRAPHY

Rashmi Dixit is a paediatric and adult infectious diseases Specialist with an interest in metabolic medicine and the interaction between communicable and non-communicable diseases. She has completed a second fellowship in Travel and Tropical Medicine, in which her dissertation was on obesity in colonised populations and developing countries, which was published in a peer-reviewed journal, and has published several first author papers. She has completed a PhD at the University of Sydney on influenza in vulnerable populations, which examined the role of metabolic risk factors for severe influenza in indigenous Australians.

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Note:

SHORT-TERM CHANGES IN CARDIOVASCULAR HEMODYNAMICS IN RESPONSE TO BARIATRIC SURGERY AND WEIGHT LOSS USING THE NEXFIN® NON-INVASIVE CONTINUOUS MONITORING DEVICE

Sjaak Pouwels

Franciscus Gasthuis & Vlietland, Netherlands

BIOGRAPHY

Sjaak Pouwels is a MD, PhD holder and a surgical resident, currently working at the Department of Surgery, Franciscus Gasthuis and Vlietland in Rotterdam, Netherlands. He is interested in the broad spectrum of obesity research; mainly effects of bariatric surgery and physiological changes due to obesity. His recent research focused on cardiovascular hemodynamic changes and remission of type 2 diabetes mellitus after bariatric and metabolic.

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Background: Compared to healthy individuals, obese patients have significantly higher systolic and diastolic blood pressure; mean arterial pressure, heart rate and cardiac output. The aim of this study was to evaluate cardiovascular hemodynamic changes before and three months after bariatric surgery.

Methods: Patients scheduled for bariatric surgery between the 29th of September 2016 and the 24th of March 2016 were included and compared with 24 healthy individuals. Hemodynamic measurements were performed preoperatively and three months after surgery, using the Nexfin® non-invasive continuous hemodynamic monitoring device.

Results: 80 subjects were included in this study, respectively 56 obese patients scheduled for bariatric surgery and 24 healthy individuals. Baseline hemodynamic measurements showed significant differences in cardiac output (6.5 ± 1.6 versus 5.7 ± 1.6 l/min, $p=0.046$), mean arterial pressure (107 ± 19 versus 89 ± 11 mmHg, $p=0.001$), systolic (134 ± 24 versus 116 ± 18 mmHg, $p=0.001$) and diastolic blood pressure (89 ± 17 versus 74 ± 10 mmHg, $p=0.001$) and heart rate (87 ± 12 versus 76 ± 14 bpm, $p=0.02$) between obese and healthy subjects. Three months after surgery, significant changes occurred in mean arterial pressure (89 ± 17 mmHg, $p=0.001$), systolic (117 ± 24 mmHg, $p=0.001$) and diastolic blood pressure (71 ± 15 mmHg, $p=0.001$), stroke volume (82.2 ± 22.4 ml, $p=0.03$) and heart rate (79 ± 17 bpm, $p=0.02$)

Conclusion: Three months after bariatric surgery significant improvements occur in hemodynamic variables except cardiac output and cardiac index, in the patient group.



Note:

LUNG MUCOSAL DELIVERY OF NANOCARRIER PNEUMOCOCCAL VACCINE

Imran Saleem

Reader in Nanomedicine, Liverpool John Moores University, UK

There is a huge drive in the vaccine research field, pharmaceutical industry and Bill Gates Foundation for effective targeting of dendritic cells (DCs) to enhance the immune response and for needle-free vaccination. The aim of this study was to adsorb pneumococcal protein (PspA), onto poly(glycerol adipate-co- ω -pentadecalactone), PGA-co-PDL, nanoparticles (NPs) to target lung DCs. Further to formulate these NPs into dry powder nanocomposite microparticles (NCMPs) suitable for pulmonary vaccine delivery. NPs were prepared using an emulsion solvent evaporation method and PspA was adsorbed onto the surface of NPs (100:20 [NP: PspA]). The NPs were spray-dried in an aqueous suspension of leucine (1:1.5) to produce NCMPs and characterised in terms of particle size, loading, cell viability, protein stability (SDS-PAGE), integrity (circular dichroism, CD), antigenicity (ELISA), immunization and aerosolisation studies. The NPs produced were 322.83 ± 4.25 nm in size with PspA loading 19.68 ± 2.74 μ g/mg. The NCMPs resulted in a fine particle fraction (FPF%) >75%. The NPs appear to be well tolerated by DCs cell lines ($\geq 90\%$ cell viability) at 19.5 μ g/mL after 4h exposure. SDS-PAGE, CD (α -helical decreased <13% vs. standard PspA) and the antigenicity (>95%) confirmed that PspA was stable in both formulations after spray-drying. The cfu in BALF of mice challenged with pneumococcal bacteria was significantly less compared to PspA alone in the lungs or via subcutaneous injection. The PspA loaded NPs were incorporated into NCMPs having excellent aerosolisation characteristics whilst maintaining protein activity. Hence, it may be feasible to use these carriers for pulmonary vaccine delivery.

BIOGRAPHY

Imran Saleem is a reader in nanomedicine within the School of Pharmacy and Biomolecular Sciences, Liverpool John Moores University, UK. His research is aimed at developing novel delivery systems for targeting therapeutic agents to their site of action, with emphasis on lung diseases via dry powder pulmonary delivery. He has over 10 years' of experience in micro/nanoparticle formulation and drug delivery systems, and has published extensively in peer-reviewed journals, conference abstracts and book chapters. His research group is focused on the design and development of nanocarriers for delivery of biomacromolecules including, genes, peptides, vaccines and drugs.

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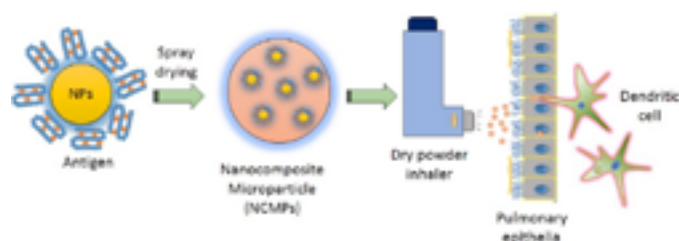


Fig.1: Lung mucosal delivery of nanocarrier pneumococcal vaccine.

IMMUNE RESPONSES OF MICE IMMUNIZED WITH HBsAg FORMULATED IN NALOXONE/ALUM MIXTURE: COMPARISON TO FENDRIX VACCINE

Mohammad Hossein Yazdi and Hoda Shirazi

Tehran University of Medical Sciences, Iran

Hepatitis B virus can cause cirrhosis of the liver and hepatocellular carcinoma. Due to the lack of sufficient immune response in whole population, several researches are being done to improve the efficacy of Alum based HBV vaccine. Here, naloxone/alum mixture as adjuvant was used for the HBsAg vaccine and immune parameters evaluated in immunized mice. In this study the effect of naloxone/alum mixture for the HBsAg vaccine has been investigated and compared to Fendrix vaccine. Female Balb/c mice were vaccinated at day 0, 14 and 28 with, alum based vaccine or naloxone/alum mixture vaccine in different doses. Naloxone/alum vaccine groups received the dose 3, 6 or 10 mg/kg of naloxone in the vaccine formulation. One group received routine HBsAg alum vaccine and a group received Fendrix vaccine. Some groups received naloxone plus HBsAg without alum and a group received HBsAg without adjuvant. PBS, naloxone and alum were also injected into the control groups separately. Finally, the naloxone/alum formulated vaccine compared with the Fendrix and routine alum based vaccine regarding to the levels of total anti-HBS antibody, IFN- γ , IL-4, IgG1 and IgG2a and the level of lymphocyte proliferation. The level of total anti-HBS antibody in Naloxone formulated vaccine was comparable with Fendrix. Meanwhile, IFN- γ /IL-4 ratio level was significantly higher in Naloxone formulated vaccine groups versus mere vaccine group. IgG2a was also higher in the naloxone formulated vaccine groups. These data showed that naloxone/alum mixture has ability to shift the immune response toward Th1 pattern, which more potentiate the immunity against infections.

BIOGRAPHY

Mohammad Hossein Yazdi has got his PhD in the field of Pharmaceutical Biotechnology in 2014 from Tehran University of Medical Sciences, School of Pharmacy. His PhD work was about cancer treatment by immunotherapy. He is now Assistant Professor at Biotechnology Research Center and Recombinant Vaccine Research Center of Tehran University of Medical Sciences and pursues his interest in both vaccine and immunotherapy of cancer and infectious diseases. He has published more than 30 papers in reputed journals and has been serving as Senior Lecturer of advanced immunology and immunotherapy at Tehran University of Medical Sciences.

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Note:

TEMPERATURE DATA ANALYSIS OF THE VACCINE COLD CHAIN SYSTEM IN NORTHERN PART OF THAILAND

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Vaccines are temperature-sensitive biological preparations, 2-8°C or cold chain period were the appropriate range. The change of the temperature during transport system might be effect to vaccines quality assurance. This descriptive study was to analyze the data temperature of vaccine in cold chain system. We aimed to find the factor that effected to the change of vaccine's temperature before used, such as area of vaccine transport, seasonal and type of health care unit. Temperature data of DPT- HB vaccine that used in National Health Security Office (NHSO) region 1, included 8 provinces in northern part of Thailand were analyzed. The temperature data were collected by computerized data logger and analyzed by SPSS for window version 17.0 and logtag analyzer program. The result showed that, from 323 health care units in fiscal year 2011, DPT-HB vaccine temperature had lower than 2°C at 86.9% and upper than 8°C at 90.4%. Type of health care unit and seasonal didn't affect to vaccine temperature control, significantly. In fiscal year 2012, DPT-HB vaccine temperature from 1,399 health care units showed that lower than 2°C at 78.5% and upper than 8°C at 92.5%. Type of health care unit didn't affect to vaccine's temperature control following the World Health Organization criteria but the seasonal had significant effect to vaccine's temperature control. The study also found that most of the health care worker did not set the computerize data logger follow the handout of the company. Based on the study results, adequate equipment, provide training and supervision about new and current computerize data logger were recommended to support to maximize the efficacy and effectiveness of vaccine and cold chain monitoring in health care unit.

BIOGRAPHY

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ASSESSMENT OF THE RISK OF CONTAMINATION WITH BVD VIRUS IN PREPARATION OF VETERINARY RABIES VACCINE

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The absence of contamination is necessary for all veterinary vaccine. However, the quality control does not always imply that vaccines are not contaminated. One of the prominent vaccine contaminations is the presence of a small amount of bovine viral diarrhea virus (BVDV) which can infect vaccinated animals. In case of preparation of rabies vaccine, the target animals dogs, and cattle especially in a high-risk environment. The contamination is sometimes inevitable since the vaccine is prepared in animal cultured cells that required fetal calf serum (FCS) as well as bovine serum albumin (BSA). Therefore, a constant quality control is required during all steps of vaccine preparation to determine the contamination with BVD virus. We, therefore, carried out *in vitro* experiments to determine the BVDV using both PCR and ELISA techniques. Samples of tissue culture cells of five different batches containing fetal calf serum were collected. Randomly, samples of BSA and FCS used for vaccine preparation were collected as well. A nested PCR carried out using specific primers for BVDV. An inactivated BVD virus was used as the positive control. The ELISA test was performed using an IDEXX BVDV Ag/serum plus kit. Fortunately, neither of RT-PCR or ELISA test results was positive with BVD virus during all steps of vaccine preparation. This could be because of both recruiting high-quality reagents and serums for tissue culture and inactivation of rabies virus with beta-propiolactone as a recommended agent for viral inactivation. Based on the results of our experiments, we concluded that a rabies vaccine preparation in our facility is safe enough for use in cattle as well as other animals.

BIOGRAPHY

Masoud Ghorbani has received his Doctor of Veterinary Medicine degree from the University of Tehran in 1985 and moved to Ottawa, Ontario, Canada in 1990. He enrolled in his PhD, program at the Department of Biochemistry at the University of Ottawa and was graduated with a PhD degree. He has extensive experience on developing innovative peptide and DNA vaccines against HIV and influenza viruses in animal models including mice, ferrets, and monkeys while he was appointed as a Senior Research Scientist at the Variation Biotechnologies Inc. in Ottawa, Ontario, Canada. He has also worked at the Department of Molecular Biology and Microbiology, Case Western Reserve University, Cleveland, Ohio, USA (2003-2004) as well as Children's Hospital of Eastern Ontario, Ottawa, Canada (CHEO) (2000-2003) as a Senior Research Associate. In 2008, he returned back to Tehran and started working at Pasteur Institute of Iran as an Assistant Professor. His current projects are mainly focused on quality control of rabies vaccine production as well as the development of new version of an oral vaccine for the use in animals.

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