JOINT EVENT

31st Euro Global Summit and Expo on Vaccines & Vaccination

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4th World Congress and Exhibition on Antibiotics and Antibiotic Resistance

June 14-16, 2018 Barcelona, Spain

Keynote Forum

Day 1

Gabriel Kristian Pedersen

Statens Serum Institut, Denmark

Targeted delivery in rational vaccine design

Novel vaccine strategies include the so-called subunit vaccines, which encompass only the part of the pathogen to which immune recognition results in protection. The high purity of these vaccines makes adverse events less likely, but it also makes the vaccines less immunogenic and therefore potentially less effective. Vaccine adjuvants that increase and modulate the immunogenicity of the vaccine are therefore added to solve this problem. Besides aluminum salts, which have been used in vaccines for 90 years, a number of novel vaccine adjuvants include delivery systems like liposomes and emulsions have been included in licensed vaccines over the last 30 years. However trial-and-error has been the explorative approach of choice, for the design of novel vaccine adjuvants due to major gaps in the knowledge about immunological activation processes. Increasing insight into immunological mechanisms and how to manipulate them has replaced empirical with rational design of adjuvants, leading to vaccine adjuvants with increased and customized immunogenicity profiles without compromising vaccine safety. I will present an overview of where vaccine adjuvant research is today. I will furthermore show an example where the newest knowledge in innate immunology enables the rational design of a novel CTL inducing vaccine adjuvant.

Biography

Gabriel Pedersen is an immunologist and head of section for the Adjuvant Research group at the Center for Vaccine research, Statens Serum Institut, Copenhagen. Gabriel did his PhD at University of Bergen, Norway, focusing on pandemic influenza vaccines, before moving to Karolinska Institutet, Sweden, to do a postdoc in B cell biology, with particular focus on innate-like B cells. Since 2016, he has focused on adjuvant research on SSIs novel pipeline of adjuvants, particularly focusing on liposome and emulsion-based adjuvant and delivery systems.

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Carmen Alvarez-Dominguez, J Vaccines Vaccin 2018, Volume 9
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Carmen Alvarez-Dominguez

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Listeria based nanovaccines as therapeutic vaccines

Dendritic cell-based (DC-based) vaccines are promising immunotherapies for cancer. However, several factors, such as the lack of efficient targeted delivery and the sources and types of DCs, have limited the efficacy of DCs and their clinical potential. We propose an alternative nanotechnology-based vaccine platform with antibacterial prophylactic abilities that uses gold glyconanoparticles coupled to listeriolysin O 91–99 peptide (GNP-LLO91–99), which acts as a novel adjuvant for cancer therapy as well as therapeutic vaccine for cutaneous melanoma acting as a novel immunotherapy. GNP-LLO91–99 exhibited dual anti-tumour activities, namely, the inhibition of tumour migration and growth and adjuvant activity for recruiting and activating DCs, including those from melanoma patients. GNP-LLO91–99 nanoparticles caused tumour apoptosis and induced antigen and melanoma-specific cytotoxic Th1 responses (P≤0.5). They also cause tumour complete remission and survival improvement. GNP-LLO91-99 nanovaccines presented superior tumour rejection and survival benefits, when combined with anti-PD-1 or anti-CTLA-4 checkpoint inhibitors, predicting an improvement of these immunotherapies action. Studies with monocyte-derived DCs of patients with stage IIIB melanoma confirmed the ability of GNP-LLO91-99 nanovaccines to complement the action of check point inhibitors, not only reducing cell-death markers expression on DCs, but also potentiating DC antigen-presentation and production of Th1-Th12 cytokines. We propose that GNP-LLO91-99 nanovaccines function as immune stimulators and immune effectors and serve as safe cancer therapies, alone or in combination with other immunotherapies.

Biography

Carmen Alvarez-Dominguez has completed her PhD in Immunology, 1993 has her expertise in listeriosis and Listeria based vaccines and nano-vaccines for biomedical purposes. Her group has prepared different vaccines for listeriosis, either systemic listeriosis or neonatal listeriosis, using different vectors such as dendritic cells or nanoparticles. Moreover, they have also prepared Listeria-based nano-vaccines as therapeutic tools for solid tumours. She has built this vaccine expertise after more than 27 years of experience in research, evaluation and teaching in hospital, basic research and academic institutions in Spain and USA. She is also moving recently to consultancy companies to put new vaccines into the market.

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Day 2

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Frederic J Deschamps

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Vaccinations in working populations

Vaccinations are the key of current prophylactic measures for occupational risks. It concerns mainly hepatitis B, but also other vaccinations: diphtheria, polio, tetanus, flu. Few of those are actually important to protect determined groups of workers who could be exposed to infections in relationship with their jobs. Studies concerning the assessment of prevalence for vaccination's coverage were conducted among a miscellaneous population of workers. The knowledge and the behaviors of workers towards vaccinations were also overseen. Low adherences to vaccinations, including for the high occupational risk exposure groups, were found. Only few workers stated that vaccinations are effective and safe, therefore positively associated with willingness to be vaccinated. Despite recommendations, the widespread use of vaccines in the working population clearly postpones the vaccines intakes. It seems desirable to promote a list of mandatory vaccinations regarding to job practices. Education about vaccinations to workers will also improve their behaviors towards its coverage.

Biography

Frederic J Deschamps is a Medical doctor (Lille- France University in 1990). He completed his PhD in Occupational Toxicology in 1993. He was nominated Professor of Medicine in 2002. In the last 20 years he has improved the Department of Occupational Diseases of the University Hospital of Reims (Champagne County). From 1995, he manages the Regional Institute of Occupational Health. He belongs to the French National University College of Occupational Researches and Practioners. He has focused his work an occupational infectious diseases and health effects of low doses toxics with long term exposure.

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