Immunology and Vaccines Summit 2021

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KEYNOTE FORUM

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Molecularly engineered surfactin biosurfactant to treat MDA-MB-231, triple negative breast cancer

Together 28 piglets (aged over 2 months) were infected with 105 TCID50 of porcine respiratory and reproductive syndrome virus (PRRSV) into both nasal nostrils using a volume of 2x150 (i.e. 300) microliter inoculum. In addition, 9 piglets served as uninfected controls. On day 11 post-infection, tissue samples from tonsillar area, each lung lobe, spleen and liver were taken from 12 sacrificed animals. By day 18, another 16 piglets have been authopsied for tissue sampling. At both intervals, also blood samples were taken for serological examination. For histological examination, the organ samples were fixed in neutral formalin, processed and embedded into paraffin. Sections were stained either for standard histology, or treated with immunohistochemically staining reagents. A commercial monospecific antiserum against the N protein of PRRSV was applied in the first layer and then combined with an alkaline phosphatase labelled second antibody in second layer. An additional slide was treated with the second antibody only for staining control. In 4 out of 9 uninfected (negative control) piglets a slight focal thickening of the peri-bronchial connective tissue and/or of the inter-alveolar septa was noted (a finding referred to as a mild non-specific interstitial infiltrate, MNSII). This could be clearly distinguished from the usual interstitial pneumonia (UIP) detected in the lungs of 23 out of 28 infected animals (82 %). In the latter, the inter-alveolar septa revealed more widespread mononuclear cell (mainly lymphocyte) infiltration occasionally reaching an extensive intensity. As a rule, the N-protein was found in the bronchial ciliary epithelium cells of nearly all the piglets who developed UIP (21 out of 28, 75 %), along with less frequently positive squamous epithelium at pharyngeal and/or tonsilar areas (13/28, 46 %).

Biography

virologist and pathologist, Graduated at Medical Faculty of Comenius University (CU) in Bratislava, Slovakia (in 1960), from 1960-1966 research fellow at the Pathology Department of the same Medical School; PhD (1970) and ScD (1985) at the Institute of Virology, Slovak Academy of Sciences (SAS), Bratislava; associate professor at the Jessenius Medical Faculty of CU in Martin (Slovakia). Executive editor of the international journal Acta virologica (1981-1991) and presidium Member of SAS in 1995-1998. Author of 7 books and 20 chapters in handbooks as well as of 220 original research papers (which have been cited over 1900 times).

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Development of Methods About Safe Application Of Possessing DNA-Genome Viral Strains As Material For Novel Molecular Anti-Viral And Anti-Malignant Vaccines, As Well As For Transfer Of Appropriate Gene Sequences

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The possibility about safe application of possessing DNA-genome viral strains for production of molecular vaccines against SARS-CoV-2/COVID-19 and other viral infections, against malignant transformations, as well as for transfer of genes of interest, should be investigated. Taking in consideration the proved activated formation of thrombs by protein Spike (S) of virus strain SARS-CoV-2, it is necessary to be designed molecular vaccines against other virus proteins, as for instance, against viral envelope (E) protein, against virus membrane (M) protein or against virus nucleocapsid (N) protein, together with boosting with previously designed specific siRNAs against virus gene, coding virus S protein. Sub-populations of laboratory-incubated mammalian cells were transfected with previously designed recombinant gene constructs, based on the DNA-genome of Adeno-Associated Virus (AAV – Parvoviridae family) and inoculated with low initial infectious titers (high initial dilutions of viral suspensions) of vaccine avipoxviral strains FK – fowl and Dessau - pigeon, belonging to Poxviridae family). Mammalian cells were inoculated after formation of semi-confluent monolayers. Then the so inoculated cellular monolayers were scraped-off and used as source of intra-cellular virus forms, after previous freezing at –800C in the presence of cryo-protector Dimethyl sulfoxide (DMSO), followed by thawing at room temperature. Then, de novo-seeded cultures of mammalian cells were inoculated with the so prepared intra- and extra-cellular forms of each one of both vaccine avipoxviral strains. Presence of additionally-inserted copy of the respective gene of interest was observed in separate sub-populations of mammalian cells, transfected by based on AAV DNA-genome recombinant gene constructs.

Biography

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