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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