

Vaxjo: A web-based vaccine adjuvant database and analysis system

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Vaccine adjuvants enhance host immune responses to co-administered antigens in vaccines. The web-based Vaxjo (<http://www.violinet.org/vaxjo/>) database and analysis system curates, stores, and analyzes vaccine adjuvants and their various applications in vaccine development. The Vaxjo database contains detailed manually annotated and structured information for each vaccine adjuvant, including adjuvant name, components, structure, appearance, storage, preparation, function, safety, and vaccines that use this adjuvant. Each of these adjuvant annotations is accompanied with reference citation. The reference resources include primarily peer-reviewed journal articles and sometimes reliable company and government websites. Each vaccine adjuvant is linked to different adjuvanted vaccines stored in the general VIOLIN vaccine database (<http://www.violinet.org>). As of May 2012, 103 vaccine adjuvants have been annotated and included in Vaxjo for public query. Among these adjuvants, 98 have been used in development of 384 vaccines stored in VIOLIN against over 81 pathogens, cancers, or allergies. A user-friendly web query and visualization interface is developed for interactive vaccine adjuvant search. The Vaxjo data can be searched online based on keywords, adjuvant features, pathogens, and adjuvanted vaccine types. To support data exchange, the information of vaccine adjuvants is stored in the Vaccine Ontology (VO) in the Web Ontology Language (OWL) format. In this presentation, the adjuvants used in different types of vaccine developments and the roles of these adjuvants in vaccine development will be specifically discussed.

Biography

Yongqun "Oliver" He An associate professor in the University of Michigan Medical School, Ann Arbor, MI, USA. His primary research focuses are Brucella vaccine R&D, ontology development and applications, and bioinformatics. His group has developed the most comprehensive web-based vaccine database and analysis system VIOLIN (<http://www.violinet.org>). Dr. He is the founder and a primary developer of the community-based Vaccine Ontology (VO). He has published more than 60 peer-reviewed journal papers, proceeding articles, and book chapters. Dr. He also serves as a member of editorial board for several journals.

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