LJI Available Technologies

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Monkeypox T Cell Epitopes and Megapools

Researchers in the Sette lab at the La Jolla Institute for Immunology (LJI) have compiled known epitope information to determine protein conservation and immunodominance for both CD4+ and CD8+ T cell responses to Monkeypox virus (MPXV). Additionally, the researchers have developed epitope pools that can be utilized to assess responses to vaccination and MPXV infection.

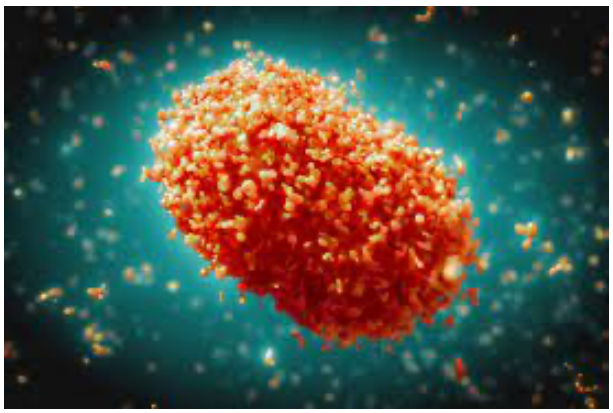
The 2022 MPXV outbreak has raised alarm, is being monitored by health and regulatory agencies worldwide, and has received considerable attention in the general news. Relatively little information is available related to immune responses in the context of MPXV infections compared to other poxviruses such as vaccinia virus (VACV), the virus utilized as a vaccine to protect from small pox infection/disease, which is also completely or partially effective against MPXV. Very few studies are available related to the magnitude and nature of human T cell responses that develop in the context of natural MPXV infection, which is relevant because T cell responses are reported to be important in modulating the severity and terminating pox virus infections. Two prior studies have investigated T cell responses against MPXV; however, there is still a lack of T cell epitope data and selective information is available in terms of protein immunodominance.

As such, the inventors from the Sette lab at LJI have compiled known epitope information available on orthopoxviruses, with particular emphasis on VACV, to determine protein conservation as well as immunodominance for both CD4+ and CD8+ T cell responses. That information led the inventors to develop epitope pools that can be utilized to assess responses to vaccination and MPXV infection. A need remains for identifying T cell epitopes for use in diagnostics, treatments, vaccines, and kits, and there is a specific need for optimized megapools for use in detecting and characterizing orthopoxvirus-specific responses in infection and following vaccination.

ADVANTAGES:

- **Based on known information available on orthopoxviruses**
- **Can be used to assess responses to vaccination and MPXV infection**
- **Identifies T cell epitopes for use in diagnostics, treatments, vaccines, and kits**

Monkeypox T cell epitopes and megapools for use as reagents or diagnostic tools



A picture of the Monkeypox virus
(https://www.who.int/news-room/fact-sheets/detail/monkeypox)

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La Jolla Institute for Immunology | Business Development
+1 (858) 752-6500
bd@lji.org
https://www.lji.org/research/licensing-opportunities/