

## Supertope Carrier

Researchers at the La Jolla Institute for Immunology have designed a protein component that can be added to any vaccine that involves direct antigenic protein expression such as recombinant protein vaccines as well as RNA and DNA vaccines. This protein component, termed the “supertope carrier” provides additional T cell help to vaccine formulations.

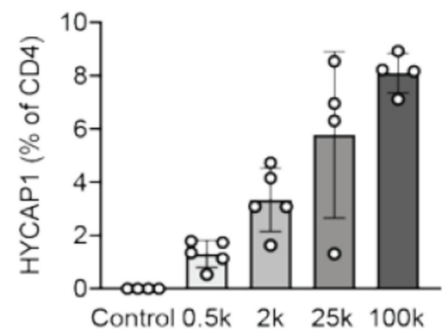
CD4 helper T cells are critical for successful vaccines. T cell help is particularly important for rare B cells, and most potent neutralizing antibody responses of interest against dangerous pathogens come from rare B cells. Carrier proteins have been used in several licensed vaccines as sources of T cell help. However, those carrier proteins are large and highly immunogenic on their own as B cell and antibody targets. These immunogenic sites on the proteins can be profoundly immunodominant to neutralizing sites, and the immunodominant site(s) can distract the antibody responses resulting in non-neutralizing antibody response. Therefore, large carrier proteins in vaccines are very suboptimal for novel vaccine designs against difficult targets because the carrier protein becomes a distracting antibody target due to its size and immunogenicity to B cells.

As such, researchers at LJI have designed a small carrier protein composed of a number of known class II epitopes that are added to a small protein scaffold which can be connected to an antigen of interest via a linker domain. This provides a modular vaccine approach for obtaining increased T cell help while focusing the antibody response on the antigen of interest, not the supertope carrier protein.

### ADVANTAGES:

- Can be added to any vaccine that involves direct antigenic protein expression
- Focuses antibody response on the antigen of interest
- Can be linked with any antigen of interest

*Small Protein Scaffold That Can Provide Extra T Cell Help to Vaccines*



*Frequency of total HYCAP1 CD4 T Cells at day 10 post-immunization with the supertope carrier*