

<a href="#">Find A Doctor</a>	<a href="#">Patients &amp; Families</a>	<a href="#">Departments &amp; Services</a>	<a href="#">Medical Professionals</a>	<a href="#">Research</a>	<a href="#">Giving</a>
-------------------------------	---	--	---------------------------------------	--------------------------	------------------------

Children's Hospital Oakland Home ▶ News ▶ CHORI Study Suggests Human Antibody Structure May be Key to Improving Effectiveness of Meningococcal Vaccines

[SHARE](#)

# CHORI Study Suggests Human Antibody Structure May be Key to Improving Effectiveness of Meningococcal Vaccines

Keyword Search

GO

## CHORI Study Suggests Human Antibody Structure May be Key to Improving Effectiveness of Meningococcal Vaccines

Oakland, CA (February 16, 2018) - Research conducted by UCSF Benioff Children's Hospital Oakland Research Institute (CHORI) scientists demonstrates that a human antibody raised by vaccination with a meningococcal B vaccine, may have the potential to contribute to broad protection against diverse strains of the bacteria *Neisseria meningitidis* - also known as meningococcus and improve future effectiveness of vaccines for the disease.

The study, "Crystal structure reveals vaccine elicited bactericidal human antibody targeting a conserved epitope on meningococcal fHbp," by CHORI scientists Peter Beernink, PhD and the late Alex Lucas, PhD, in collaboration with scientists at GlaxoSmithKline, is published in the journal *Nature Communications*, February 6, 2018 (doi:10.1038/s41467-018-02827-7).

The CHORI scientists recently identified the molecular details of the binding of a human antibody raised by a vaccine for prevention of bacterial meningitis and sepsis. They report the structure of a human antibody bound to a meningococcal serogroup B vaccine antigen known as Factor H binding protein. Building on a previous study in which the scientists isolated human antibodies from single white blood cells shortly after vaccination with a meningococcal serogroup B vaccine, Dr. Beernink and colleagues obtained three-dimensional structures of a fragment of the antibody, alone and bound to the antigen. The antibody was of major interest because it bound to all natural variants of the antigen. The structure highlighted the difference between human and mouse antibodies to the antigen, which, in combination with other research being pursued at CHORI, will support the development of improved meningococcal B vaccines.

The research finding is the first example of a structure of a human antibody raised by vaccination bound to its target antigen.

"This study highlights an important benefit of the vaccine, which is the potential to provide broad protection against meningococcal bacteria," said Dr. Beernink. "However, it also presents an opportunity to improve the vaccine by directing antibodies to a specific region of the antigen."

Meningococci are bacteria responsible for causing meningitis and severe bloodstream infections. Infants less than a year of age and teenagers are the age groups most at risk of disease. Currently, there are two vaccines in use in teenagers in the U.S. for serogroup B strains of the bacteria. There are no serogroup B vaccines for infants. Both vaccines utilize an antigen called Factor H-binding protein (FHbp). The FHbp antigen in the vaccines binds with human Factor H (FH), which is a protein normally present in the bloodstream.

### About UCSF Benioff Children's Hospital Oakland

UCSF Benioff Children's Hospital Oakland (formerly Children's Hospital & Research Center Oakland) is a premier, not-for-profit medical center for children in Northern California, and is the only hospital in the East Bay 100% devoted to pediatrics. UCSF Benioff Children's Hospital Oakland affiliated with UCSF Benioff Children's Hospital San Francisco on January 1, 2014. UCSF Benioff Children's Hospital Oakland is a national leader in many pediatric specialties including cardiology, hematology/oncology, neonatology, neurosurgery, endocrinology, urology, orthopedics, and sports medicine. The hospital is one of only five ACS Pediatric Level I Trauma Centers in the state, and has one of largest pediatric intensive care units in Northern California. UCSF Benioff Children's Hospital Oakland is also a leading teaching hospital with an outstanding pediatric residency program and a number of unique pediatric subspecialty fellowship programs.

UCSF Benioff Children's Hospital Oakland's research arm, Children's Hospital Oakland Research Institute (CHORI), is internationally known for its basic and clinical research. CHORI is at the forefront of translating research into interventions for treating and preventing human diseases. CHORI is ranked among the nation's top ten research centers for National Institutes of Health funding to children's hospitals. For more information, go to [www.childrenshospitaloakland.org](http://www.childrenshospitaloakland.org) and [www.chori.org](http://www.chori.org).

Contact: Melinda Krigel  
Communications Director  
UCSF Benioff Children's Hospital Oakland  
510-428-3069, 510-388-5927 (cell)  
[mkrigel@mail.cho.org](mailto:mkrigel@mail.cho.org)

## News

### UCSF Benioff Children's Hospital Oakland Study Spotlights Preschoolers With Severe Obesity

UCSF Benioff Children's Hospital Oakland Study Spotlights Preschoolers With ...

### CHORI Study Suggests Human Antibody Structure May be Key to Improving Effectiveness of Meningococcal Vaccines

CHORI Study Suggests Human Antibody Structure May be Key to Improving Effect...

### Childhood Adversity and "The Resilience Effect"

"The Resilience Effect," a film from the Genentech Foundation, highlights ...

