



IgM Memory B cells and Their Derivatives for Therapy and Vaccine Development

Brief description of technology: A novel method to generate therapeutic recombinant polypeptides targeting infectious disease-specific antigens.

Availability

Exclusive license

Technology type

Therapeutic

Biologic

Process

Technology status

Preclinical in vivo

Patent status

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Keywords

IgM-derived therapeutics

Antibody-based vaccines

Therapy for infectious agents

Developers

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Learn more

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Technology overview

Using *Plasmodium* infection as model, Dr. David Rawlings and colleagues have discovered that the IgM class of memory B cells (MBC) are the dominant responders upon reinfection with the parasite. IgM MBCs proliferated fast to generate IgM antibody-secreting cells in addition to generating IgG antibodies. These results are applicable to antigens produced by other infectious agents including bacteria, virus, fungi and parasites. To utilize the power of IgM MBCs in fighting infections, the researchers have developed a novel method to isolate IgM MBCs. By sequencing and cloning the antigen binding domains of IgM antibodies, they have generated multimeric recombinant antigen binding polypeptides and recombinant cells that produce such polypeptides. This technology represents a novel strategy for both vaccine development and to develop therapeutic antibodies.

Applications

- Therapeutic vaccine development against infectious agents
- IgM-based vaccine development
- IgM-based therapeutic recombinant antibody production

Advantages

- Antigen-binding polypeptides with flexible and multimeric design
- Stronger antigen binding compared to monomeric IgG antibodies

Market overview

The therapeutic antibody market was valued at USD 108.01 billion in 2017 and is expected to grow at a CAGR of 12.5% from 2017 to 2023. The global infectious disease therapeutics market is expected to be worth USD 154.18 billion by the end of 2023, growing a CAGR of 7.96% from 2018 to 2023.