PCSK9 inhibitors as cholesterol lowering agents for the treatment of ischemic heart disease

Re-thinking PCSK9 inhibition.
Draupnir Bio researchers have discovered that Heparan Sulfate proteoglycans (HSPG) are essential for PCSK9 induced degradation of the LDL receptor (LDLR) (Gustafsen et al. Nature Communications 2017). Blocking PCSK9 activity increases the number of LDL receptors and the uptake of cholesterol-rich particles from circulation. Accordingly, PCSK9 inhibitors efficiently lower plasma cholesterol levels and protect against ischemic heart disease. Draupnir Bio inhibitors target the HSPG binding surface of PCSK9 (blue). Unlike the surface targeted by current PCSK9 inhibitors (green), this surface can be targeted by small molecules.

Value Proposition/USP
Draupnir Bio develops oral PCSK9 inhibitors for the treatment of ischemic heart disease, the biggest killer in the world.

Business Opportunity/Objective/Commercial Perspectives
Ischemic heart disease is the main cause of death worldwide and accelerated by increased cholesterol levels in the blood. The primary choice of medication is statins, and these are among the most commonly prescribed and best selling drugs ever. Unfortunately, a considerable number of patients show insufficient response or develop statin intolerance. PCSK9 is a new drug target and the development of peroral small molecule PCSK9 inhibitors would have the potential to replace statins and become major blockbusters.

Technology Description/Technology Summary
- Inhibitory monoclonal antibodies directed against a critical functional region in PCSK9.
- Structurally defined low molecular weight glycan mimetics with potent inhibitory activity towards PCSK9 and the potential to serve as well-tolerated PCSK9 inhibitors.

Development Phase/Current State
- Proof of Concept obtained in animal models
- Currently optimizing of compounds prior to lead compound selection and final preclinical testing.

The inventors
Simon Glerup, Camilla Gustafsen, Peder Madsen, Aarhus University.
Our research group focuses on protein sorting mechanisms in metabolic and neurological disorders.

Contact Information
CSO Camilla Gustafsen
E-mail: gustafsen@draupnir.bio
CEO Simon Glerup
Email: glerup@draupnir.bio

Seeking
- Funding/Investors
- Licensee
- Partner/Research Collaboration
- IPR Sale


Biotech and Pharma