



### Market

Treatment of severe juvenile idiopathic arthritis (JIA) in children and rheumatoid arthritis (RA) in adults typically includes one biological drug targeting the pro-inflammatory cytokine TNF- $\alpha$ . The total market value of these drugs in RA is >20B€. Despite the use of anti-TNF- $\alpha$  agents, and more recently the JAK-inhibitors there is still a high unmet medical need for new treatment of inflammatory diseases. In particular, for new drugs that can provide a novel and alternative mode of action.

### Business Idea

Lipum aims to fill this gap and has identified a novel target for treatment of chronic inflammatory diseases. The target is a protein denoted bile salt-stimulated lipase (BSSL). We have shown a significant correlation between BSSL concentration in plasma and disease activity score 28 (DAS28) in RA patients. Lipum's therapeutic approach is an antibody that blocks the function of BSSL thereby inhibiting the inflammatory process. The efficacy has been demonstrated in several different established animal inflammation models. Both animals devoid of BSSL (knockout mice) and animals treated with an antibody directed towards BSSL are effectively protected from disease development and progression.

### Competition

Lipum offers an extensive and exceptional scientific knowledge on a new target molecule and this has potential to provide a unique way to treat

chronic inflammations. Beside today's advanced TNF- $\alpha$  inhibitors the pharmaceutical industry invests significant resources on JAK inhibitors and IL-6 inhibitors/antagonists and several Phase II and III studies are in progress. Nevertheless, since Lipum's mode of action isn't expected to suppress the immune system it should have less side-effects and it may also be used in combination with drugs already available on the market.

### Advantages

- BSSL induces human CD14+ monocyte migration, whereas an anti-BSSL mAb blocks the same, both in a dose dependent manner.
- Disease progression was significantly decreased by a rabbit anti-mouse BSSL mAb.
- BSSL deficient knock-out mice are protected against disease progression across several inflammatory diseases.
- Anti-BSSL antibodies does not directly suppress the immune system. The side-effect profile is likely to be very favorable.

### Current status

Lipum is among the exclusive group of EU Horizon 2020 SME Instrument phase 2 beneficiaries and supported with 2.2 M€. The fully humanized monoclonal antibody drug candidate SOL-116 has passed cell line development and production optimization is in progress. We are now proceeding towards toxicological studies and clinical trials that will start during year 2021.

### Contact & website

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### IPR

"New Method for Treatment of Inflammatory Diseases" has claims that relates to inflammatory disorders, such as RA, JIA, and IBD. It has been granted in the US, Europe, China, Australia, New Zealand, and Canada. In addition, a divisional US patent has been granted and further divisional applications have been filed. A product patent application has been filed on the humanized antibody.

### Capital Need

We are raising 20 M€ to finance the work until clinical proof of concept after a Phase II study in 2022. A first tranche of 5 M€ will be raised during Q1, 2020.

### Partnership/collaboration

We are interested in talking to private and institutional investors on equity investments or out-licensing. Lipum is also actively seeking partners for further development.



### Management



**Dr. Einar Pontén, CEO**  
 Former co-founder and CEO of Merck SeQuant AB (exit to Merck KGaA).



**Dr. Pernilla Abrahamsson, COO**  
 Medtech innovator and entrepreneur that made exit to Senzime AB.



**Ass. Prof. Susanne Lindquist, CSO**  
 Expert on animal models of inflammatory diseases & 15 yrs research on BSSL.



**Dr. Mats Reslow, CMC**  
 Extensive experience in biopharmaceuticals, most recently at Novo Nordisk.

### Board of Directors



**M.Sc. Pharm. Ulf Björklund, Chairman**  
 Pharmaceutical industry leadership pro. Former CEO of Aprea (oncology) & OxyPharma (autoimmunity).



**Prof. Lennart Lundberg, Board**  
 Leadership positions AstraZeneca - Target Discovery and Business Development.



**Prof. Olle Hernell, CMO, Board**  
 Discovered the bile salt-stimulated lipase (BSSL) and its role in inflammation.

### Scientific Advisory Board

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**Dr Björn Löwenadler**  
 CEO at Adjuvare AB