

## INFLAMMATORY AND AUTOIMMUNE DISEASES IMMUNOTHERAPEUTIC STRATEGY

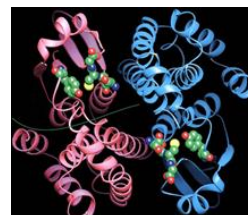
### Technology

#### Immunotherapeutic strategy for inflammatory and auto-immune diseases using P28GST, a unique parasite - derived enzyme

P28GST is an anti-oxidant enzymatic protein identified in schistosomes which displays potent anti-inflammatory and pro-Th2 immunogenic properties, demonstrated in rodents and non-human primates.

Safety and immunogenicity have been confirmed through 5 clinical trials (Phases I, II and III), for another application: the Bilhvax program

Treatment with P28GST reduces intestinal inflammation in experimental colitis through decrease of Th1 responses (including TNF) and induction of a pro-Th2 regulatory response.



P28GST 3D structure

(Johnson et al Biochemistry 2003,42,10084)

Rev in : Capron *et al*

*Int Arch All Immunol* 2001,124,9

*Brit Med Bull*, 2002,139, 148

*Trends in Parasit.* 2005, 21, 143

*Mucosal Immunol* 2016,9, 322



#### Keywords

- Parasite enzyme
- P28GST
- Anti-inflammatory
- Pro Th2 response
- Crohn's disease



#### Intellectual Property

- FR 2986432
- WO 2013117860
- National phase extensions (Aug.2014): Europe, USA, Japan, Canada, Israël



#### Development Status

- Dosage and administration improvements in animal models.
- Phase II (safety) in Crohn's disease patients: in progress.



#### Partnership

Out-licensing

### Benefits

- **ORIGINALITY:** P28GST is a very well characterized helminth derived enzyme for a new application, based on the induction of a prolonged anti-inflammatory response, aiming to control Inflammatory Bowel Diseases and auto-immune diseases
- **EASE:** P28GST production in yeast under GMP procedures is totally controlled.
- **SECURITY AND EFFICACY:** repositioning of a protein having successfully passed 5 randomized clinical trials in another application: safety and long term immune response, including in children
- **CLINICAL TRIAL IN CROHN'S DISEASE PATIENTS:**  
Multicentric pilot Phase II in progress (ACROHNEM) : Clinical trials identifier: NCT 02281916
- **MARKET:** Crohn's disease patients including children and adolescents; mode of action totally different from actual therapies, with expected low secondary effects

### Applications

- The proposed strategy represents a new therapeutic approach of Crohn's disease: based on active immunization in order:
  - to decrease intestinal inflammation.
  - to prevent post-surgery recurrences.
  - to maintain remittance periods.
- Potentially extended to auto immune diseases (Multiple Sclerosis)

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