# Liver targeted FGF19:
## A novel long lasting FGF19 for liver regeneration

- **FGF19** is critical to fine tune **liver regeneration.**
- A new **proprietary fusion protein** has been developed combining a FGF19 and apolipoprotein A-I, as a scaffold protein, with the following properties:
  - Liver targeted.
  - Prolonged half-life in circulation.
- **Primary Indication**: liver preconditioning for hepatectomies or living donor liver trasplantation.

**Scope of the problem**

- Non-alcoholic fatty liver disease (NAFLD) affects up to 30% of the general population and 70-90% of obese individuals.
- Elevated hepatic bile acids (BA) levels have been found in NAFLD patients.
- The combined intrinsic biological activities of FGF19, namely its ability to lower liver fat, regulate BA levels and promote hepatocellular proliferation, would make this molecule an ideal tool to improve regeneration of steatotic and cholestatic livers.
- However, FGF15/19 protein has a very short half-life, with a high glomerular filtration rate.

**Patient Need Addressed**

FGF19-Apo may be applied perioperatively for the improvement of liver regeneration after resection or transplantation particularly in the presence of hepatosteatosis and cholestasis.

**Product Profile**

- A recombinant fusion protein of FGF19 and a scaffold protein (apolipoprotein-AI) (Fig. 1).
- The fusion protein has a longer half-life in circulation (5-fold) than FGF19.
- The fusion protein is retained FGF19 target tissues, including liver, brain and adipose tissues.
- FGF19-Apo retains FGF19 biological activities on liver BA and fat metabolism and displays potent hepatoprotective and proregenerative effects (Fig. 1).

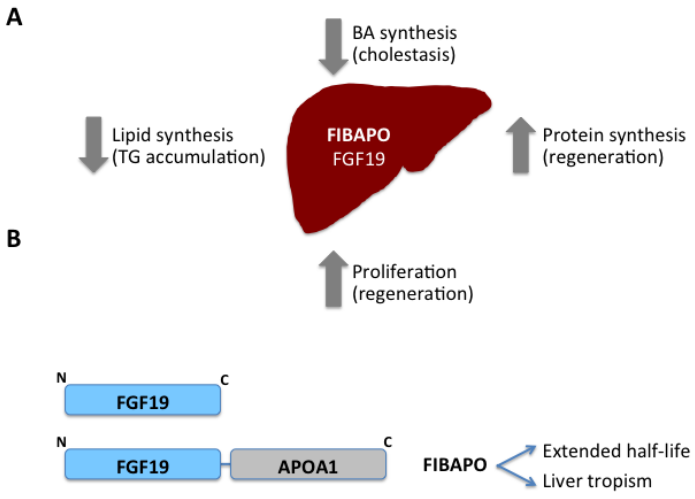


**Fig 1**: A. Biological activities of FGF19-Apo supporting its applicability in the prevention of post-resection liver failure and the stimulation of liver regeneration.

B. Structure of FGF19-Apo, a chimeric molecule with improved circulating half-life and hepatotropism.

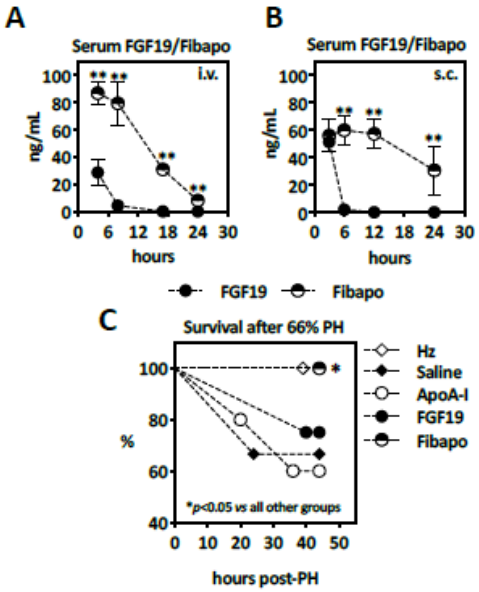


**Fig 2**: FGF19-Apo shows improved pharmacological properties than FGF19 after intravenous (A) and subcuatenous (B) administration and is effective in preventing postresection liver failure in mice with fatty livers (C).

**Intellectual Property**

Apo-A conjugates for the administration of biologically active compounds. WO2009150284.

**References**


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