Technology offer IP-008

Venetoclax for the treatment of colorectal cancer

Researchers from IMIB propose the new use of Venetoclax (FDA-approved drug) as an irreversible inhibitor of the hepsin protease, thereby reducing cell migration and invasion, key processes in the metastasis of colorectal cancer, positioning it as a promising alternative for the treatment of gastrointestinal cancers, especially colorectal cancer.

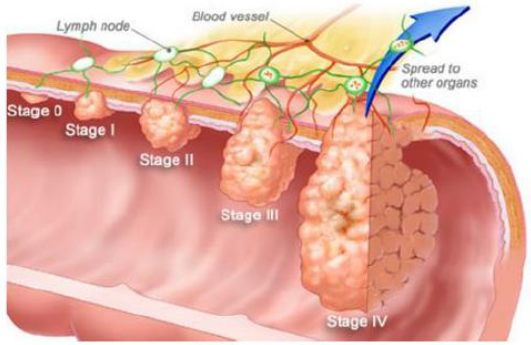

Figure. Colorectal cancer stages.

State of development

TRL-5 Late preclinical research

Objective of the collaboration

License and/or co-development

Industrial Property

Granted Spanish patent

Priority date: 28/07/2022

Contact

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Market needs

Colorectal cancer is the fourth leading cause of cancer-related deaths worldwide, with limited treatment options in advanced stages where surgery is not viable. Key proteins like hepsin play a critical role in tumor progression by degrading the extracellular matrix and activating metastatic signaling pathways. Hepsin overexpression contributes to increased cell invasion and thrombotic complications. Current therapies, such as chemotherapy, often face limitations due to resistance and severe side effects. There is a clear need for safer, targeted treatments to prevent and manage colorectal cancer more effectively.

Technical solution from IMIB

Venetoclax acts as an irreversible inhibitor of the hepsin protease. This inhibition blocks proteolytic activity, preserving the integrity of the extracellular matrix and reducing signaling that promotes the tumor. *In vitro* assays have shown a significant decrease in cell migration and invasion in tumor tissues. Furthermore, *in vivo* studies using zebrafish models confirmed a reduction in tumor invasion, supporting its therapeutic potential in colorectal cancer.

Benefits

- Venetoclax irreversibly inhibits hepsin, a key factor in tumor invasion, with greater specificity than chemotherapy.
- It is an FDA-approved drug for leukemia, facilitating repositioning.
- It acts on migration and invasion without cytotoxicity, reducing side effects.
- It reduces development and production times and costs.