Technology offer IP-002

Imipramine for the prevention or treatment of colorectal cancer associated with Fascin1 overexpression

Imipramine is a clinically approved drug that works by inhibiting the overexpression of fascin1, a key protein in tumor cell migration, invasion, and metastasis. This action reduces tumor proliferation and invasive capacity. It is useful for preventing and treating colorectal cancer, particularly serrated adenocarcinoma and metastatic forms that exhibit high fascin1 expression.

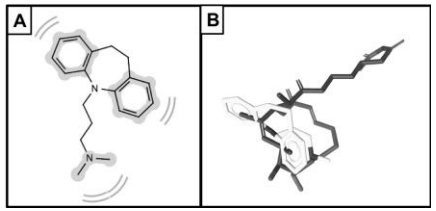

Figure. Pharmacophore models of Imipramine

State of development

TRL-4 Laboratory validation

Objective of the collaboration

License and/or co-development

Industrial Property

Canadian and US patent

Priority date: 28/9/2018

Contact

Innovation Unit at IMIB

innovacion@imib.es

Market needs

Colorectal cancer remains one of the leading causes of cancer-related mortality, with a high incidence of metastasis and limited efficacy of current treatments. Fascin1 is a key protein in the formation of filopodia and invadopodia, promoting tumor cell migration, invasion, and metastasis. Its overexpression is associated with poor prognosis and resistance to conventional therapies, such as anti-EGFR antibodies or immune checkpoint inhibitors. Current therapeutic options show limited efficacy and high variability in patient response. Therefore, there is an urgent need for treatments capable of preventing and treating colorectal tumors, especially those with high fascin1 expression, such as serrated adenocarcinoma.

Technical solution from IMIB

Imipramine acts by inhibiting the overexpression of fascin1, a key target in tumor cell migration and invasion. In *in vitro* studies, it has been shown to effectively reduce fascin1 activity and processes associated with cell proliferation and migration. In *in vivo* models, the compound demonstrated the ability to prevent and treat colorectal cancer, including serrated adenocarcinomas and metastases, offering an effective therapeutic solution against tumors that overexpress fascin1.

Benefits

- It specifically inhibits the overexpression of fascin1, a key factor in colorectal cancer invasion and metastasis, showing greater specificity compared to conventional therapies.
- As an FDA- and AEMPS-approved drug, its use in cancer reduces clinical development time and costs.
- High selectivity for fascin1, minimizing interference with other proteins and cellular pathways.
- Targeted action that enables antitumor efficacy with a lower risk of systemic side effects compared to conventional chemotherapy.

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