

TREATMENT OF HER₂-DEPENDENT CANCER USING AN AGENT THAT MODULATES THE ACTIVITY OF A MIRNA

ERG\NEO

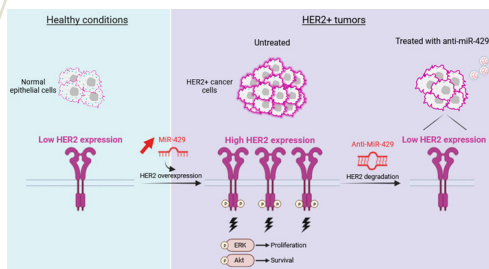
L'AVENIR EST FAIT D'AUDACE

Use of anti-miRNA as therapeutic tools for HER₂+ breast cancers.

PRESENTATION

About 25% of primary human breast cancers are due to the deregulated expression of HER2 which is also found in many cancer types. HER2-targeted therapies have improved patients' survival but both de novo and acquired resistance remain a challenge, as only 25% of the patients respond to the actual therapies. The team identified some miRNA including hsa miR-200b-3p and hsa-miR-429 from miR-200 family that are upregulated in HER2+ breast cancer cells and tumour samples. Their high level of expression is of bad prognosis for HER2+ breast cancer patients. Some of these miRNAs are also essential for HER2 expression and/or function. This allows to further stratify HER2+ breast cancer patients to offer a personalized treatment based on the modulation of miR-200b or miR-429.

The team developed an optimized and vectorized anti-miRNA allowing specific inactivation of miR-429. Efficacy has been demonstrated *in vitro* in HER2+ cancer models of breast, gastric, ovarian and pancreatic origin as well as in a HER2+ breast cancer cell *in ovo* xenograft model.



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ERBB2 - HER2+ breast cancers - Targeted Therapies
MiRNA - Personalized medicine

INTELLECTUAL PROPERTY

Treatment of HER2-dependent cancer using an agent that modulates the activity of a miRNA. Inventeurs: Faure C., Bourdoulous S., Domingot A. (WO/2019/081607)

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APPLICATIONS

- Diagnosis of HER2+ breast cancer based on miRNA expression level
- Evaluation of the prognosis of HER2+ breast cancer patients based on miRNA expression level
- Novel HER2-targeted therapy based on anti-miRNA delivery
- Treatment of HER2+ cancers

COMPETITIVE ADVANTAGES

- Therapeutic efficacy on HER2 including forms resistant to the actual therapeutic arsenal
- MiRNAs level of expression can be assessed with non-invasive techniques
- Anti-miR-429 targets HER2 expression

DEVELOPMENT PHASE

- ✓ Cytostatic and cytotoxic effects of anti-miR-429 in HER2+ cancer cells
- ✓ Precise knowledge of anti-miR-429 mode of action
- ✓ Vectorization of an optimized anti-miRNA for *in vivo* delivery
- ✓ Efficacy in a xenograft model *in ovo*