

# DIAGNOSIS AND/OR PROGNOSIS OF HER<sub>2</sub><sup>+</sup> CANCER USING ONE OR MORE MIRNA AS BIOMARKERS

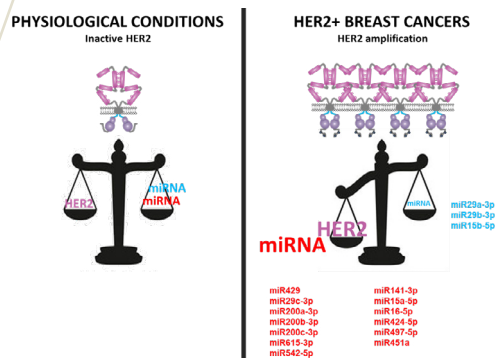
New biomarkers for the diagnosis/prognosis of HER<sub>2</sub>-dependent breast cancer

# ERG\NEO

L'AVENIR EST FAIT D'AUDACE

## PRESENTATION

About 25% of primary human breast cancers are due to the deregulated expression of ErbB2/HER2. HER2-targeted therapies have improved patient survival, but both de novo and acquired resistance remain a challenge, as only 25% of treated patients respond to the current therapies. Equivocal HER2 status also remains an issue as it affects subsequent clinical management. Following the analysis of the expression level of more than 800 miRNA in several human breast cancer cells and patient biopsies with various HER2<sup>+</sup> status, the team has identified novel miRNA biomarkers for the diagnosis and prognosis of HER2<sup>+</sup> cancers. This allows for further stratification of patients and offers new therapeutic strategies based on the modulation of some of these miRNA. The team has the expertise and know-how required to measure miRNA and HER2 expression levels in biological samples as well as to assess HER2 activation status, downstream signaling and functional effects on cell proliferation and survival in breast cancer.



ERBB2 - HER2<sup>+</sup> breast cancers - Patients stratification

MiRNA Diagnostic/prognostic

Biomarkers Equivocal HER2 status

## APPLICATIONS

- Diagnosis of HER2<sup>+</sup> breast cancer
- Evaluation of the prognosis of HER2<sup>+</sup> breast cancer patients
- Novel HER2-targeted therapy based on miRNA modulation

## INTELLECTUAL PROPERTY

WO2019081610A1; EP, US & JP

## CONTACT

+33 (0)1 44 23 21 50

industriels@erganeo.com

Ref. project : 414b

## COMPETITIVE ADVANTAGES

- New biomarkers to stratify breast cancer patients with equivocal HER2<sup>+</sup> status (4-12% cases)
- New biomarkers to evaluate HER2<sup>+</sup> breast cancer prognosis.
- MiRNAs expression level assessed with non-invasive techniques

## DEVELOPMENT PHASE

- miRnome profiling indicated a positive correlation between some miRNA including hsa-miR-429, and hsa-miR-200b-3p and HER2 expression levels in breast cancer cell lines.
- Correlation confirmed in patients' samples by computational analyses of breast and gastric tumors.
- Kaplan-Meier analysis demonstrating that high level of expression of miR-429 or miR-200b-3p is predictive of a bad clinical prognosis of HER2<sup>+</sup> breast cancer cases.
- Modulation of miR-200b or -429 results in decreased HER2 expression or activation, reduces cell proliferation, stimulates apoptosis in multiple models of HER2<sup>+</sup> cancers.