RODENT MODELS OBTAINED BY KNOCK-IN OF THE HUMAN HER2 GENE

Research groups from CIBER, VHIO, Hospital del Mar Research Institute and ICREA have patented a rodent model

The Need

Experimental animal models, crucial for studying anti-HER2 agents, often show disparities due to genetic differences between humans and animals. Common models, including mice and rats, may not accurately reflect therapy safety, leading to mismatches with clinical trial outcomes.

Recognizing these limitations, there's a pressing need for refined animal models. Genetic engineering offers a solution by creating humanized models, incorporating human cells or genes to better mimic human physiology. Transgenic mice expressing the human HER2 protein, while informative for basic HER2 biology, have limitations, including location-specific expression and inadequate protein levels, hindering their suitability for testing therapies targeting the human HER2 form.

Efforts are underway to refine these models, achieving broader organ expression and mimicking human responses, addressing the urgent need for more valid experimental models to assess the safety of anti-HER2 therapies accurately.

The Solution

The inventors have developed a transgenic mouse expressing human HER2 under the murine Erbb2 promoter, allowing controlled expression in normal tissues.

This model is ideal for assessing the safety of anti-HER2 therapeutic agents using the transgenic rodent, determining adverse effects.

Innovative Aspects

1. The knockin mouse for the expression of the human protein HER2 under the promoter of the homologous murine protein Erbb2 allows for the expression of HER2 under controlled, physiological levels in the normal tissues where Erbb2 would be expressed. **No other knockin for HER2 has been described in the literature**. The HER2 protein has been already detected in the lungs of these mice, and further organs are being tested for the expression of the protein.

2. Additionally, the invention includes a polynucleotide, vector, and host cell related to the modified gene. Methods for producing rodent cells lacking Erbb2 and obtaining the transgenic rodent are also outlined, offering valuable tools for studying HER2-targeted therapies.

Intellectual Property:

- Priority european patent application filed (November 23rd, 2023)

Aims

Looking for a partner interested in a license and/or a collaboration agreement to develop and exploit this asset.

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