Oncolytic adenoviruses expressing monoclonal antibody trastuzumab for treatment of Her-2+ cancer

Fact Sheet

Project Information

TRASTUZUCRAD

Grant agreement ID: 201667

Project closed

Start date
1 September 2008

End date
31 August 2014

Funded under
Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 1 622 360,00

EU contribution
€ 1 622 360,00

Coordinated by
HELSINGIN YLIOPISTO
Finland

Objective

Metastatic breast, ovarian, gastric and esophageal cancer are currently incurable and therefore require new and innovative treatment approaches. The objective of this project is to construct oncolytic adenoviruses that code for trastuzumab (HerceptinR), a monoclonal antibody against tumor associated receptor Her2.

Intravenous trastuzumab is already widely used for treatment of Her2+ breast cancer, and is being actively studied for other tumor types that frequently feature Her2 amplification, including ovarian, gastric and esophageal cancer. We hypothesize that expression of the antibody from a virus will result in production of high, sustained concentrations of functional trastuzumab in situ. In comparison to conventional intravenous delivery, this might results in enhanced anti-tumor activity but reduced systemic exposure and side-effects. Further, a single injection of the virus might result in prolonged production of trastuzumab which might be cost-effective as intravenous trastuzumab is expensive. The viruses will be targeted for effective delivery to tumor cells through viral capsid modifications, and oncolytic cell killing will proceed only in p16/Rb pathway mutant tumor cells. Trastuzumab production will be coupled to virus replication. Further, trastuzumab is secreted into the surrounding tumor tissue for an effective “bystander effect”, ie. killing of neighboring tumor cells. In summary, we hypothesize that this approach will result in tumor cell killing through viral oncolysis, the anti-tumor activity of trastuzumab, and the potential synergy between the approaches. Further, high local concentrations might result in anti-tumor efficacy superior to efficacy seen with intravenous trastuzumab. These developments might eventually result in increased treatment options for patients with currently incurable Her2+ cancers.

Fields of science (EuroSciVoc)

natural sciences > biological sciences > microbiology > **virology**

medical and health sciences > clinical medicine > oncology > **breast cancer**

Keywords

adenovirus | cancer gene therapy | monoclonal antibodies | oncolytic viruses | trastuzumab

Programme(s)

FP7-IDEAS-ERC - Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

ERC-SG-LS7 - Applied life sciences, biotechnology and bioengineering: agricultural, animal, fishery, forestry/food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology.

Call for proposal

ERC-2007-StG
See other projects for this call

Funding Scheme

ERC-SG - ERC Starting Grant

Host institution

HELSINGIN YLIOPISTO

EU contribution

€ 1 622 360,00

Total cost

No data

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Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Beneficiaries (1)

HELSINGIN YLIOPISTO

Finland

EU contribution

€ 1 622 360,00

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Total cost

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Last update: 16 July 2019

Permalink: https://cordis.europa.eu/project/id/201667