

Novel molecules offer hope to pancreatic cancer patients

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EU researchers have made significant progress along the road to delivering novel drugs that improve life expectancy and the quality of life of pancreatic cancer patients. Following a systematic screening of natural and chemically synthesised compounds, the PANACREAS (Integrating chemical approaches to treat pancreatic cancer: making new leads for a cure) project team has been able to identify a number of molecular targets that have shown promise in halting cancer progression.

The confirmation of strong anti-cancer activity could lead to further testing and evaluation of these molecules, and hopefully to the eventual clinical application of new cancer-fighting drugs.

Cancer of the pancreas, or pancreatic adenocarcinomas (PDACs), constitutes one of the most aggressive forms of human cancer, causing 34 000 deaths annually in the EU alone. Despite considerable research efforts over the past few decades, conventional treatment approaches – including surgery, radiation, chemotherapy, and combinations of these – have close to no impact on the course of this aggressive cancer, which rapidly metastasises and induces death in nearly all patients.

New treatments for PDACs are therefore urgently needed to significantly improve the physical and psychological status of patients, and also help reduce the burden of healthcare costs on the EU. Furthermore, potential new drug molecules identified by PANACREAS could spur further technological innovation, create new opportunities for European pharmaceutical firms, and boost Europe's research reputation for finding treatments for diseases traditionally regarded as incurable.

The search for new drugs to combat PDAC progression and thus increase patient [life expectancy](#) and achieve healthcare cost efficiencies has been an EU priority.

The PANACREAS project brought together clinicians, translational cancer researchers, chemists and two pharmaceutical enterprises in an integrated effort to synthesise and test new PDACs drugs. Assays, models and in silico research was performed to identify inhibitors of various known tumour suppressors. The team suspected that certain proteins and enzymes might be implicated in the spread of PDACs.

The project's work programme sought to specifically address the clinical issues and challenges that researchers have encountered in developing viable PDAC therapies. These include resistance to conventional therapeutics and the high propensity of the cancer to metastasise. These issues were taken into account when selecting possible [molecular targets](#).

The project team synthesised new molecules, assessed their capacity to effectively block precise cancer-associated mechanisms and determined their anti-cancer activity in vivo. Molecules that demonstrated promising anti-[cancer](#) activity in PDAC cells were then investigated in more depth. Chemical genetic screens were also performed in order to identify compounds with synthetic lethal activity in PDACs.

The most promising compounds have been sent for validation for therapeutic potential at the Centre for Integrated Oncology (CIO) Cologne-Bonn. The CIO Cologne-Bonn is certified as one of initially five German centres of excellence for haematology and clinical oncology by the German Cancer Foundation (Deutsche Krebshilfe).

The PANACREAS project was officially completed at the end of February 2016.

More information: For further information please visit the PANACREAS project website:

www.panacreas.eu/

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