

New animal models can revolutionize the study of cancer

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Animal facilities of the IDIBELL

Some animal models developed by researchers at the Institute of Biomedical Research of Bellvitge (IDIBELL) and the Catalan Institute of Oncology (ICO) has served to validate the effectiveness of a new drug against ovarian cancer resistant to cisplatin. The multidisciplinary work, done in collaboration with the biopharmaceutical company Pharmamar, was published in the journal *Clinical Cancer Research*.

The human tumor tissue is implanted in the same nude mouse organ from which it came. This type of implant, called orthotopic, can reproduce the histological, genetic and epigenetic human tumors and the patterns of tumor spread, which is not achieved with other methods of implementation. Furthermore, these tumor models will be keys to the development of the so-called personalized medicine against various

cancers. Besides ovarian tumors, researchers are experienced in orthotopic implantation of other tumors such as colon, pancreas, breast, endometrial or testicle, and [liver metastases](#) and neurofibromatosis. Researchers are currently developing models of lung, head and neck tumors.

The technique has shown the effectiveness of lurbinectedin (PM01183), a drug recently approved by the [Food and Drug Administration](#) (FDA) as "orphan drug" against ovarian cancer. This disease is the fifth leading cause of death among women. The survival rate is very low because it is often diagnosed at an advanced stage and appear resistances to chemotherapy with cisplatin. So, it is necessary to find alternative treatments.

The lurbinectedin is a marine-derived drug developed by the pharmaceutical company Pharmamar, from the Zeltia group, which has been shown effective against [ovarian tumors](#) resistant to cisplatin in several studies. One of the most compelling studies in preclinical level is the work published now in [Clinical Cancer Research](#). The article confirms that orthotopic implants in [laboratory mice](#) are useful not only to deepen the knowledge of tumors, but also to collaborate with the pharmaceutical industry in the process of developing new drugs to treat cancer. Lurbinectedin has recently demonstrated its efficacy in a Phase II study in treatment-resistant ovarian cancer.

The coordinator of the study and researcher at the IDIBELL and ICO, Alberto Villanueva, highlights the importance of the models developed in his laboratory that "allow obtaining tumors grown in mice that reproduce the immunohistochemical, genetic and epigenetic properties of the human tumors and its response to chemotherapy with cisplatin, that is the base of the treatment against ovarian cancer."

More information: Lurbinectedin (PM01183), a New DNA Minor

Groove Binder, Inhibits Growth of Orthotopic Primary Graft of Cisplatin-Resistant Epithelial Ovarian Cancer. Vidal A, Munoz C, Guillen MJ, Moreto J, Sara P, Martinez-Iniesta M, Figueras A, Padulles L, Garcia-Rodriguez FJ, Berdiel-Acer M, Pujana MA, Salazar R, Gil-Martin M, Marti L, Ponce J, Mollevi DG, Capella G, Condom E, Vinals F, Huertas D, Cuevas C, Esteller M, Aviles P, Villanueva A. Clin Cancer Res. 2012 Aug 15. [Epub ahead of print]

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