

A method to predict the response to a purine analogous

Available to license: Method to predict the response to chemotherapy with fludarabine and the risk of suffering Graft-Versus-Host disease.

IDIVAL has developed a tool to predict the response to chemotherapy with fludarabine and the risk of suffering Graft-Versus-Host disease.

A Method to predict the response to a purine analogous

Fludarabine has to be phosphorylated into triphosphate forms to integrate into DNA and play its cytostatic role. These active forms can be dephosphorylated, therefore inhibited by the cAMPK. So by measuring the activity of cAMPK and the expression of PRKACA gene, we can obtain a biomarker of response to fludarabine and to other purine analogues in patients with leukemia. As fludarabine is also used in most allogeneic transplantation, so we can also use this biomarker to predict the risk of Graft-Versus-Host disease (GVHD). Allogeneic hematopoietic stem cell transplant (allo-HSCT) is the only curative option for many patients with leukemia. GVHD is a frequent complication of allo-HSCT, and consists of the destruction of host tissues by donor effector lymphocytes. The incidence of the acute form of GVHD (aGVHD) has been estimated at 10%-80%, with symptoms usually during 2-3 weeks post allo-HSCT. The technical solution proposed consists in a method to determine the expression of PRKACA gene and its activity as a useful tool to predict the response to chemotherapy with fludarabine in patients with acute leukemia and lymphoproliferative syndromes and also to predict the risk of suffering GVHD after an allogeneic transplant.

Competitive advantages

The main competitive advantages of the tool are:

- Measuring the PRKACA gene expression and the cAMPK activity we can predict the response to the chemotherapeutic treatment with fludarabine in patients with acute leukemia and lymphoproliferative syndromes, as well as the risk of suffering Graft-Versus-Host disease after an allogeneic transplant.
- It will allow a more personalized therapy, because some mutations in this gene can entail refractoriness to the treatment.

Supporting Data

Results tested in cell lines. Currently, the tool is being developed at Valdecilla Biomedical Research Institute– IDIVAL.

Market insight

This technology will be of interest to companies involved in the development of cancer therapies.

Patent Protection

A patent application covering this technology has been filed through Spanish patent application P201600872. IDIVAL would like to talk to companies interested in commercializing this tool or in a research cooperation agreement to develop it.



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Principal researchers:
Carlos Pipaón González
Lucrecia Yáñez San Segundo
Valdecilla Biomedical Research Institute
(IDIVAL)

For further information please contact:
Patricia Zorrilla de la Fuente
Technology Transfer Office- IDIVAL
otri@idival.org
+34.942.31.55.15 Ext 073144
www.idival.org Santander, Spain