genome engineering

PRESS RELEASE

Cellectis: A step towards a new therapy for AIDS

Cellectis publishes genome engineering advance in *Nature Methods*

Paris, France, September 10th, 2012 – Cellectis (Alternext: ALCLS), the French genome engineering specialist, proudly announces the publication of a collaborative paper in *Nature Methods*[1], one of the most prestigious journals for presenting new methods in biotechnology. The manuscript describes an improvement in current DNA targeted modification methods which could be adapted to the production of HIV resistant immune cells.

New hope for treating AIDS

Cellectis elaborated an enzyme that targets a key gene (CCR5) required for entry of HIV to immune cells. Disrupting this gene prevents the virus to enter those cells, and thus progression of HIV infection to AIDS.

The article shows that co-expressing the Cellectis CCR5 nuclease with an exonuclease -enzyme that is able to modify DNA strands' ends- in blood stem cells achieved a markedly enhanced rate of gene disruption: nearly 50% of treated cells exhibited mutations at the CCR5 target site. These results suggest that HIV resistant immune cells, and thus a new type of therapy for AIDS, could be obtained with this approach.

Cellectis's teams thus succeeded in improving current genome engineering techniques by employing a new approach: co-expressing meganucleases or TALENs™, Cellectis's internal technology, together with exonucleases. This technique enabled the researchers to greatly increase the disruption rate of the targeted gene and to favor a safer pathway of DNA repair compared to the rate obtained with the sole use of the same specific nuclease. This new strategy thus allows highly specific inactivation of a target gene with increased efficiency and safety, and represents a key advance for therapeutic applications of nuclease technology.

"*In 2011,* Nature Methods *chose genome editing with engineered nucleases, such as those produced by Cellectis, as « Method of the Year ». This new publication in this highly renowned journal highlights once again Cellectis's innovating strategy, its tremendous capabilities and thus its legitimacy in the biotechnology sector*", declared André Choulika, Chief Executive Officer of Cellectis. "*Indeed, this paper demonstrates an important enhancement of the power of both Cellectis's meganuclease and TALEN™ genome engineering platforms, and has particularly*

important implications for therapeutic applications where efficiency and safety are paramount".

1) Coupling endonucleases with DNA end-processing enzymes to drive gene disruption, Nature Methods doi:10.1038/nmeth.2177
http://www.nature.com/nmeth/journal/vaop/ncurrent/full/nmeth.2177.html

About Cellectis

Founded in France in 1999, the Cellectis Group is based on a highly specific DNA engineering technology. Its application sectors are human health, agriculture and bio-energies. Co-created by André Choulika, its Chief Executive Officer, Cellectis is today one of the world leading companies in the field of genome engineering. The Group has a workforce of 230 employees working on 5 sites worldwide: Paris & Evry in France, Gothenburg in Sweden, St Paul (Minnesota) & Cambridge (Massachusetts) in the United States. Cellectis achieved in 2011 €19M revenues and has signed more than 80 industrial agreements with pharmaceutical laboratories, agrochemical and biotechnology companies since its inception. AFM, Dupont, BASF, Bayer, Total, Limagrain, Novo Nordisk… are some of the Group's clients and partners.
Since 2007, Cellectis has been listed on NYSE-Euronext Alternext market (code: ALCLS) in Paris.
For more information, visit our website: www.cellectis.com.

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