

Hope for Progeria - Successfully Validated on Mice, a Treatment Could Soon be Tested on Children

Date:6/30/2008

PARIS, June 30 /PRNewswire/ -- Five years after the identification of the gene responsible for progeria a rare disease causing accelerated and premature ageing, a team of Spanish and French researchers (Carlos Lopez-Otin and coll. - University of Oviedo - and Nicolas Levy and coll. - Inserm/AP-HM, Marseille, France) have successfully demonstrated a treatment for the disease, using mice. This treatment, combining two existing pharmacological molecules, should slow down the progression of this disease which has hitherto remained untreatable.

Subject to the authorisation of health agencies, this treatment could very soon be tested on 15 children in Europe. This represents a major advance for the families affected by this disease and - more generally - for the understanding of the normal ageing process.

From identification of the gene to the development of treatment and the projected clinical protocol, this work - published in the review Nature Medicine - has received the financial backing of the Association Francaise contre les Myopathies (Muscular Dystrophy Association) thanks to French Telethon donations.

The treatment recently validated in mice is based on a combination of two existing pharmacological molecules: statins (indicated for the treatment and prevention of atherosclerosis and cardiovascular risks) and aminobisphosphonates (indicated for the treatment of osteoporosis). The Franco-Spanish researchers have demonstrated that this treatment attenuated the effects of the disease and significantly raised life expectancy.

As previously demonstrated by Nicolas Levy's team - which originally identified the gene in 2003 - progeria is due to the accumulation in the cells of a truncated protein, progerin, whose toxicity is linked to the presence of a fatty acid which remains fixed to the protein (whilst it is eliminated in normal cells). In order to inhibit or block the toxicity of progerin, the researchers explored the path of synthesis.

After several attempts they noted that a combination of a statin and an aminobisphosphonate could prevent the fixation of the fatty acid to the progerin, and thus reduce its toxicity. The progerin being less toxic, the disease develops more slowly.

Following these encouraging results, a clinical protocol based on this treatment piloted by Nicolas Levy in Marseille (France) is about to start up. It should last 3 years and will concern 15 of the 25 children affected by progeria in Europe. The aim of this protocol is to slow down the progression of the disease and, if possible, prolong the life expectancy - at present very limited - of the children affected.

Article published in Nature Medicine : <http://dx.doi.org/10.1038/nm1786>