

# Sebia Focus - N°2

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## Sebia partners with Inserm and Inserm Transfert to develop a unique diagnostic test for haemoglobin diseases

**This collaboration will focus mainly on the diagnosis of thalassaemias with the aim of commercializing a simple and quick new test.**

Lisses (France), 5 June, 2012 – Sebia, a world leader in the electrophoresis of proteins used to diagnose a large number of pathologies, announces today that it has entered into partnership with Inserm (the French National Institute of Health and Medical Research) and Inserm Transfert, its private subsidiary responsible for marketing the outcomes of its scientific research, to develop and commercialize a unique biological test for measuring free alpha globin chains in beta-thalassaemic patients. The test will indicate the severity index of the disease in patients.

Negotiated by Inserm Transfert, the collaboration calls for Sebia to support the research carried out by Inserm, which will develop the test. In return, Sebia will have the possibility of acquiring exclusive rights to industrially develop and commercialize the test internationally. “By teaming up with Inserm, Sebia is strengthening its commitment to the research and development of tools for diagnosing haemoglobinopathies and monitoring their treatment,” said Benoît Adelus, President and CEO of Sebia. “This test is an important innovation. It will complement the solutions currently offered by Sebia, which are designed to improve the diagnosis and treatment of these haemoglobinopathies.”

“We were looking for a company that was interested in developing this test, and the choice fell quite naturally to Sebia, since we have known the company for a long time and its interest in researching diagnostic tools for haemoglobinopathies,” explained Véronique Baudin-Creuzat, from Inserm unit U779 at the University of Paris-Sud 11 and the unit for protein polymerization pathologies, blood substitutes and rare red blood cell diseases at Bicêtre Hospital.

The test for quantifying alpha globin chains was developed by unit U779 along with the participation of the research team of Professor Frédéric Galactéros, who heads the red blood cell genetic disease unit at the Henri Mondor Hospital within the Paris Public Hospital Authority. According to Prof. Galactéros, the test Sebia and Inserm Transfert will develop will fill a gap in orienting the diagnosis of thalassaemic patients, since existing methods are more laborious, more costly, and are exclusively intended for research laboratories. Thus, it should result in the commercialization of a new test that does not use radioactivity, will provide a better appreciation of patients’ phenotypes, and will be better adapted to the monitoring of treatment. Furthermore, it will be suitable on a routine basis and available to all laboratories.

“This test provides an immediate indication of the severity of the disease, since the results can be available within a day, whereas it took a week with the old methods,” said Kamran Moradkhani, an associate practitioner at Henri Mondor-Chenevier Hospital. “It ensures that diagnosis is oriented towards identifying the different mutations at work and gives us highly relevant indicators for comparing different groups of patients.”

The test is based on the interaction of the free alpha globin chain with the alpha haemoglobin stabilizing protein (AHSP). In the case of beta-thalassaemias, there is a synthesis deficit in the beta chain, which has the effect of reducing the amount of haemoglobin A (HbA) in red blood cells and leading to an imbalance between the numbers of alpha and beta chains. This imbalance leads to a relative excess of alpha chains. These chains are very unstable, and despite the fact that the AHSP plays the role of chaperone (capable of controlling and stabilizing them), in people suffering from beta-thalassaemias, they form precipitates that act like oxidants and damage the cell, resulting in apoptosis (cell death) and inefficient erythropoiesis (cell production).

According to the size of the pool of free alpha chains, one can determine the severity of the disease in thalassaemia patients, but also in patients with a synthesis imbalance in their globin chains. A preliminary study of this test has been carried out on 54 subjects (consisting of 20 patients suffering from beta-thalassaemia, 6 patients with alpha-thalassaemia, and a 28-reference control group).

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The phenotypes of the different haemoglobins were studied using high-performance liquid chromatography (HPLC) methods. This technique ensures an accurate measurement of foetal haemoglobin (HbF) and HbA2, the percentage of which is an important element for the diagnosis of thalassaemias. "HPLC and capillary electrophoresis separation techniques are valuable tools for identifying or confirming the presence of abnormal haemoglobins," explains Véronique Baudin-Creuz. Sebia brought together a panel of world experts at its offices on 25 May to present the test to them so they could assess its relevance. The meeting was chaired by Professor Andrea Mosca, of the Department of Biomedical Sciences and Technologies (CIRME) at the University of Milan, Italy, who declared that the test was "of real interest for improving the monitoring of patients and their treatment, since determining the free alpha globin chain makes it possible to highlight the onset of serious complications linked to these very heterogeneous haemoglobinopathies."

Another study of the test will be conducted on 100 patients in 2013 and will be carried out by the same research team.

### About Thalassaemias

Thalassaemia is the result of a deficit synthesis in one of the haemoglobin chains. Haemoglobin A (HbA) includes polypeptide chains that are alpha and beta. Normally, HbA haemoglobins (alpha 2 and beta 2), HbA2 haemoglobins (alpha 2 delta 2) and HbF foetal haemoglobin (alpha 2 gamma 2) are present in every individual's blood. In the case of thalassaemia, one observes either deletions (which is to say modifications involving the loss, absence, disappearance or amputation of a segment of chromosome), or thalassaemic variants. In both cases, this leads to an absence or a diminution in the synthesis of haemoglobin chains, which is at the root of what is called inefficient erythropoiesis (the red blood cell production line), associated with a greater or lesser degree of haemolysis (the breakup of red globules). The resulting symptoms are variable, ranging from the asymptomatic form to the major form accompanied by anaemia, an increase in spleen volume, and development troubles.

These pathologies are mainly found in people living in the Mediterranean basin, Asia and Africa.

### About Inserm Transfert

Inserm Transfert SA is a legally incorporated subsidiary of Inserm, the French National Institute of Health and Medical Research, which was created in 2000 to handle the whole process of transferring the knowledge created in Inserm's research laboratories to industrial companies, from the declaration of the invention to the industrial partnership.

Inserm Transfert also provides services in the mounting and management of large-scale epidemiology and public health projects at the European and International level. Since 2009, it has been managing a portfolio of maturing projects. It also collaborates closely with Inserm Transfert Initiative, the Inserm subsidiary that supports start-ups in the life sciences sector.

[www.inserm-transfert.com](http://www.inserm-transfert.com)

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### About Sebia

Sebia develops, manufactures and commercializes protein electrophoresis tests and analyzers for the in vitro diagnosis of certain cancers, inflammatory diseases, metabolic disorders and haemoglobin abnormalities. Sebia's know-how in electrophoresis techniques enables it to maintain a sustained research and development program, giving



all types of laboratories access to real solutions. Its agarose gel product line (Hydragel assays, Assist and Hydrasys 2 instruments chain), capillary assays and their dedicated instruments (Capillarys 2 Flex Piercing, Capillarys 2 Neonat Fast, Minicap Flex Piercing) are designed to be integrated in the same workflow.

Today, Capillarys 2 Flex Piercing is the most advanced instrument in the field of capillary technology, which offers a high level of performance and optimization at the analytical stage. Tests are available for analyzing serum proteins, urinary proteins and immunotyping, for measuring CDT (marker of chronic alcohol abuse), and for screening haemoglobinopathies in the whole blood, with the primary capped tubes. Sebia recently adapted this potent technology to the field of diabetes in order to meet the world's growing demand for more accurate and reproducible methods to measure HbA1c.

For further information, go to: [www.sebia.com](http://www.sebia.com)

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