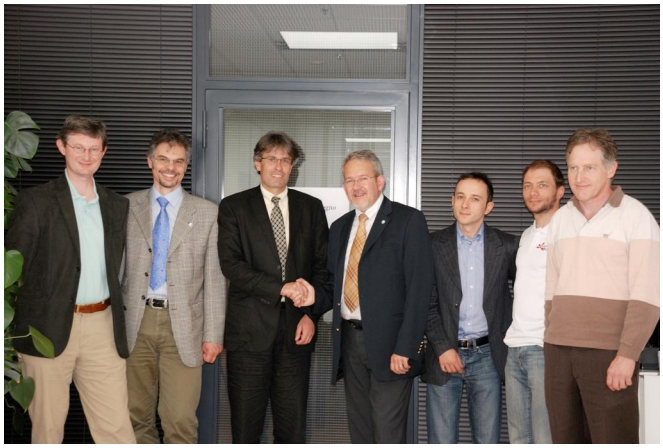
EUROSTAR project 5067: Innovative *tag* RFID endowed with anti-counterfeiting sensors to guarantee the integrity of products in pharmaceutical distribution

On Friday may 28th, Prof Franco Gervasoni (SUPSI Director) and Dr. Gabriel Haering (Cerbios-Pharma SA CEO) signed the agreement with the Swiss Confederation that officially starts this important and challenging project financed by EUROSTAR / EUREKA for the european partners and the Swiss Confederation for the swiss members.

The consortium formed by academic partners and Swiss and Italian industrialists, including the TTHF laboratory of SUPSI and Cerbios-Pharma SA, will realize an important project for the introduction of the latest generation technologies to the pharmaceutical sector.

The Project
It will be the engineers of the TTHF laboratory of SUPSI and the experts at Cerbios-Pharma SA to face this new challenge of worldwide importance. During the last several years, thanks to numerous industrial projects, the TTHF laboratory team (directed by the Prof. Andrea Salvadè) has deepened its knowledge through applied research in the sector of systems for the identification with radio frequencies (RFID). In fact, at SUPSI electronic RFID labels (*tag*) have already been developed for the application to laundry in order to satisfy the demands in the management of industrial Laundromats. In addition, they are planning an RFID application for the improvement of communication and the daily activities of individuals with disabilities.



The SUPSI and Cerbios team after the signature of the formal agreement.

From left : Prof. Salvadè (SUPSI), Dr. Vellani (Cerbios), Prof. Gervasoni (SUPSI Director), Dr. Haering (Cerbios CEO), Mr. Lasi (Cerbios), Ing. Gamma (SUPSI), Ing. Monleone (SUPSI)

The competences of the TTHF laboratory will now be applied to the pharmaceutical sector thanks to a new important European project denominated **pharmaID**, conducted in collaboration with Cerbios-Pharma SA of Barbengo-Lugano, the University La Sapienza of Rome, and the Italian firms Ada-Project and Nexse that will produce the necessary software.

The challenges of RFID applied to the pharmaceutical sector
Today, the guarantee of authenticity of medicines is faced with an ever-growing series of problems that could easily be resolved through the application of special electronic labels to the packaging of the product. Thanks to these revolutionary RFID devices the origin of a pharmaceutical product can easily be certified resulting in an advantage to the patient (final user) who will be sure to get the original medicines (drugs) and not a counterfeit product. A counterfeit medicine, besides not allowing full recovery from a found pathology, could subsequently harm the patient's health by potentially containing other ingredients that could prove toxic. In addition to the clear advantages of safeguarding the health of the patient receiving a certified medication, the pharmaceutical industry will also benefit by suffering smaller losses due to the competition of the black market, thus resulting in greater resources available for the research and development of new medicines. In this way, the **pharmaID** project will effectively aid in the fight against the imitation of medicines, a problem at heart of all sanitary authorities worldwide.

Furthermore, the integrity of the medicines, which frequently suffer damages during transportation by not being correctly stored at provided temperature, will be assured by the electronic RFID devices. The integration of specific temperature sensors on the RFID label will in fact allow the signaling of important information for the producer, the wholesaler, the pharmacist and even the final user. For instance, when exceeding the appropriate limits of temperature during transportation the sensor will signal the possible deterioration of the medicament.

Last but no least, thanks to these innovative *pharmaID* labels it will be possible to carefully manage the **logistics and the warehousing** of the medicines, to trace them through the distribution chain, and to facilitate the possible withdrawal of an entire stock from the market due to a product recall.

The principal technological challenges of the project, directed by Ing. Ricardo Monleone (SUPSI) and Dr. Fausto Vellani (Cerbios-Pharma SA), will consist in the development of these innovative passive ad-hoc tags for the pharmaceutical industry with **low energy consumption**, endowed with **secure protocols** for their reading, and of **specific sensors for the detection of**

environmental parameters, whose integration will result extremely complex and will certainly be at the limit of today's existing technology.

The perspectives
The **pharmaID** project will last two years. During this time, several months will be dedicated to the testing of the RFID device on medicines of the firm Cerbios-Pharma SA thus giving life to an extremely innovative product at world level in the field of the identification with radio frequency applied to the pharmaceutical sector.
Such products, if indeed they have the hoped characteristics, could in the future be manufactured by Swiss firms in hundreds of million of pieces and more.
It should be noted that by participating in this innovative project SUPSI is receiving the full financial contributions from the European Community while Cerbios-Pharma SA only partially.

For more information see also :

EUROSTAR – EUREKA **http://www.eurostars-eureka.eu**
Project 5067 **http://www.eurostars-eureka.eu/search.do** (input 5067)

SUPSI English site **http://www.tthf.supsi.ch**

CERBIOS-PHARMA SA **http://www.cerbios.ch**

About SUPSI
The University of Applied Sciences of Southern Switzerland (SUPSI) is one of the new professional universities recognised by the Swiss Confederation.

Founded under federal law, SUPSI offers more than 30 Bachelor's Degree and Master's Degree courses, characterised by cutting edge education which unites classical theoretical-scientific instruction with a professional orientation. Great care is given to research, carried out in key sectors on competitively acquired projects with large European and national agencies or mandated by organisations and institutions.

About Cerbios-Pharma SA
Cerbios is a privately held company located in Lugano (Switzerland) specialized in the development and manufacturing of chemical and biological APIs for our partners world-wide.
APIs made by Cerbios cover small molecules (Chemical Division), large molecules and Probiotics (Biological Division).

The Chemical Division has specialized in the past 30 years not only in Reduced Folates (leading position), but also in the manufacturing of High Potency Active Ingredients (HPAIs) with long-term experience in the field of Vitamin D derivatives requiring sophisticated production units with high containment levels.

The Biological Division has specialized since 1976 in the research, development and production of Probiotics as active pharmaceutical ingredients, pharmaceutical finished products and feed additives.
On top of that, in the last 15 years, Cerbios has acquired a vast experience on Recombinant Proteins from mammalian cells (CHO) based on a state-of-the-art platform.

Services for third parties under exclusive manufacturing is offered in the area of HPAIs for the Chemical Division and Recombinant Proteins for the Biological Division.
Full CMC support is provided to our partners in order to provide them with the supply of cGMP clinical batches, registration/validation material and APIs from commercial manufacturing.
Paramount to this is the supply of all documentation required for a successful registration.

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