



## Pharmelp offers fake drugs know-how to labs in poorer nations

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Swiss researchers have developed a laboratory-based technology for analysing medicines that can be implemented easily and at low cost by organisations in the developing world.

The non-profit group, known as [Pharmelp](#), sent a prototype of the ECB (*Electrophorèse capillaire Budget*) device last November to Mali in Africa, a country which is wrestling with a high burden of counterfeit and substandard medicines.

The system, developed by a team of scientists under the leadership of Serge Rudaz of the University of Geneva and based on a technology known as capillary electrophoresis, is designed to make use of generic, widely-available components and does not need costly consumables.

Four years ago, Rudaz' lab joined forces with the engineering school at the University of Applied Sciences in Fribourg, Switzerland, to start developing a prototype and - three prototypes later - the team believes it has a system in the ECB 3 (pictured) that could be put into production.

"Our primary aim was to develop a low-cost system that could be used by quality control laboratories in developing countries, and also as a teaching tool for students," Rudaz told *SecuringPharma.com* in a recent interview.



They decided to develop a system based on capillary electrophoresis, a separation technique which relies on the different charges, frictional force and mass of molecules, and has been around since the 1960s.

Commercial capillary electrophoresis systems have been available from the likes of Beckmann Coulter and Agilent since the 1980s, but the apparatus tends to be too costly for labs in emerging economies, with typical systems priced at \$80,000-plus.

In contrast, Pharmelp's ECB costs just \$7,000 to construct.

Capillary electrophoresis is well-adapted to the quality control testing of pharmaceuticals, according to Rudaz, and unlike techniques such as liquid chromatography is less prone to mechanical breakdown and uses fewer consumable materials such as solvents.

All told, capillary electrophoresis uses 1,000-fold fewer resources than liquid chromatography, he said, and costs around 50 centimes per analysis, compared to 20-25 Swiss francs.

The technique also requires a much smaller sample - which can be a significant consideration if the drug to be tested is valuable or in a small quantity - and generates a result in minutes rather than hours. It also does not require the use of so much reference standard materials, which are also costly to buy.

That made it a good option for Mali, which "has two main problems when it comes to medicines counterfeiting," according to Rudaz. "Specifically, the country imports the bulk of its medicine supplies and lacks the capability to do routine quality control at entry," he said.

The ECB system will allow the national authorities to quickly test the quality of drugs offered on the market, for both the identity and strength of the active principle, he said.

The equipment sent to the national testing laboratory in Mali capital Bamako, along with an engineer who was trained in the use of the machine in Geneva, and will be used to test a range of essential medicines in the country, including anti-infectives such as amoxicillin and co-trimoxazole, antiretroviral agents for HIV and cardiovascular like furosemide.

The researchers formed Pharmelp with the aim of providing assistance - in the form of education and training in the use of the ECB system as well as provision of the instrument - to quality control laboratories in Africa.

It also wants to promote the use of capillary electrophoresis as an interesting and useful separation technique.

"We believe that this is a great technique for quality control of medicines in hospitals, as it is cheap, generic and robust and does not need extensive, complicated method development," said Rudaz.

Pharmelp is currently in the process of identifying other centres in Africa and elsewhere in the world with the capability to take delivery of an ECB and receive training on its use.

Contacts have been made with groups in Cambodia and Congo, for example, and the objective is to start a new project during the course of 2010.