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# PharmaCyte Biotech's Improved Technology Attracting World Class Oncologists

NEW YORK, NY -- (Marketwired) -- 07/30/15 -- PharmaCyte Biotech(OTCQB: PMCB) is a small international biotechnology firm, but you wouldn't know it by the company it keeps. How does PharmaCyte keep landing such world-renowned oncologists? Well, we think the answer is simple -- proven technology that has only gotten much better over time! The latest name to join PharmaCyte is Dr. Manuel Hidalgo, a renowned clinical and laboratory investigator in both pancreatic cancer and other abdominal cancers. He was recently named to the company's Scientific Advisory Board (SAB), and his appointment prompted a deeper look into the technology and the names involved with it.

Worldwide experts like Dr. Matthias Löhr of the Karolinska Institute in Stockholm, Sweden, and Dr. Daniel Von Hoff of Translational Drug Development or TD2 in Scottsdale, Arizona, have been attracted to PharmaCyte's pancreatic cancer treatment in one way or another. Dr. Manuel Hidalgo now makes up three of the top names in the world in pancreatic cancer. All three have expressed an interest in helping PharmaCyte develop a treatment that will help pancreatic cancer patients and patients of other solid abdominal cancers.

After seeing yet another high profile oncologist join the growing list of experts that PharmaCyte has attracted of late, we decided to explore the improvements to the Cell-in-a-Box<sup>®</sup> technology that is at the heart of PharmaCyte's myriad treatments in cancer and diabetes. For these answers, there is no better source than Prof. Dr. Walter Günzburg, who is PharmaCyte's Chief Scientific Officer and the Chief Technology Officer at Austrianova where Cell-in-a-Box<sup>®</sup> was created and where the technology has matured over the last decade.

First things first, let's keep in mind PharmaCyte's pancreatic cancer treatment, which combines low doses of the chemotherapy prodrug ifosfamide with the Cell-in-a-Box<sup>®</sup> technology, has already performed remarkably in 2 separate human clinical trials in advanced pancreatic cancer. It has performed so well, in fact, that the results bested data produced by Eli Lilly's Gemzar<sup>®</sup> or gemcitabine, the current single agent "gold standard" for pancreatic cancer.

These results were produced before the improvements that PharmaCyte's partner, Austrianova, made to the technology. Cell-in-a-Box<sup>®</sup> is a live-cell encapsulation technology made up of tiny pinhead-sized capsules that are each filled with about 10,000 live cells genetically engineered to activate ifosfamide (in the case of PharmaCyte's pancreatic cancer treatment) right at the site of the tumor. With a technology that has already produced excellent data in clinical trials, the improvements to Cell-in-a-Box<sup>®</sup> should prove promising for any of PharmaCyte's future clinical trials in both cancer and diabetes.

We'll discuss 3 areas where Cell-in-a-Box<sup>®</sup> is a better technology today than it was when it was used in clinical trials in advanced pancreatic cancer. The first such improvement has been to the way Austrianova manufactures and synthesizes the material used to make Cell-in-a-Box<sup>®</sup>. As Dr. Günzburg points out, the material used in the technology is a proprietary material that Austrianova has the patents for and no one else can copy.

The material is not commercially available, and Dr. Günzburg says it's a very reproducible synthesis process, which means Austrianova has complete control over how the polymer comes out. "You need to have that for a medical product, you need to be able to say that every time I make it, it's going to be the same to a very small tolerance."

It is the material that separates Cell-in-a-Box<sup>®</sup> from other cell encapsulation technologies, but it is the genetically modified cells that are living and working inside the capsules that make Cell-in-a-Box<sup>®</sup> effective in treating solid tumors and diabetes. And, to that end, Cell-in-a-Box<sup>®</sup> is much more potent today because of improvements made to filling the capsules.

Dr. Günzburg said, "When we first started we were filling these capsules and they weren't really full, there were cells in there and they were working, but they weren't full. Nowadays every single time -- every capsule is totally full. We know exactly how many cells are in there, and those cells are producing the enzyme, which is required to convert the drug, the prodrug ifosfamide in the case of PharmaCyte's pancreatic cancer treatment, to its active form. The product, let's say, is much more active than it used to be because we've got a lot more cells in there -- we've got a totally full capsule."

With an improved manufacturing and synthesizing process and the improvement of filling the capsules that make up Cell-in-a-Box<sup>®</sup>, with many more live cells, which should make the technology much more active and potent, the final piece is to improve the ability to mass produce and store the capsules so that they don't have to be used immediately upon production and can be used at a later time, as well as shipped all over the world. This brings us to the third improvement made by Austrianova to Cell-in-a-Box<sup>®</sup> -- the ability to freeze the product.

Dr. Günzburg commenting on this vital improvement said, "In the old days we produced the product, and we used it directly in patients -- we weren't able to stockpile it and keep it for any long periods of time. Today, however, we have a freezing protocol that's a proprietary protocol. It's a way in which we can actually keep the frozen capsules for long periods of time. We've gone over 5 years now in the freezer. So, when the patient comes in, you just take out the vial, thaw it and use it directly on the patient. This is something we couldn't do before, but something you really need if you want to make a viable medical product."

These 3 improvements are most likely going to help PharmaCyte produce the same, but most likely even better data from its upcoming clinical trials to treat advanced pancreatic cancer and to treat pain and malignant ascites, two debilitating symptoms associated with pancreatic cancer and other solid abdominal tumors. And it could very well be future expectations that are drawing in worldwide experts who want to work with this unique and proprietary technology in one way or another.

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