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ANOTHER IN A SERIES OF PROFILES OF LEXINGTON'S OUTSTANDING ENTREPRENEURS

Bug Breakthrough: Company looks to caterpillars for production of key proteins

By Gina Greathouse and Dean Harvey

That lowly caterpillar inching its way across the sidewalk may soon earn some well-deserved respect from the scientific community. It could someday play a role in saving your life or feeding your family.

Dr. Bruce Webb, professor of entomology at the University of Kentucky, has launched ParaTechs, Inc., an entrepreneurial company in Lexington, to focus on research for creating proteins from the cells of humble caterpillars.



The processes developed by the ParaTechs team have been patented and may someday lead to widespread commercial and medical usage. While the bulk of ParaTechs' methods are proprietary and cannot be shared, we can tell you they work with a lot of those familiar fuzzy insects!

Dr. Webb and his research colleague Dr. Angelika Fath-Goodin, along with their team of scientists, study the particular group of insect-infecting viruses called baculoviruses. They then use these viruses to "grow" the key proteins used in both medical and commercial applications. Medically, these proteins are the cornerstone ingredients for vaccines manufactured to protect human beings against Influenza A, hepatitis, AIDS and malaria. Most recently, baculoviruses played a key role in the successful development of the new human papillomavirus vaccine that protects females against cervical cancer. In the commercial arena, these baculoviruses lend themselves to the development of

insecticides that protect plants against insect infestation.

Is ParaTechs' work on the cutting edge of research? Absolutely! According to UK President Dr. Lee Todd, university research is the future of America's economy. Dr. Todd, whose goal it is to make UK a top-20 research institution, noted, "The future of our economy lies in the commercialization of university-driven research. Our recent history shows that we can no longer compete in the low-wage economic sectors. China, India, and other countries simply have cheaper land and cheaper labor. Because of this, we must compete with innovation. I really believe that our 21st-century economy will be defined by two things: innovation and creativity. And in this brain game, universities such as ours must lead the way."

Currently housed in UK's Advanced Science and Technology Commercialization Center (ASTeCC) in the heart of the UK campus and led by Webb and Fath-Goodin, ParaTechs is positioned to help make Dr. Todd's vision a reality. Webb, whose Ph.D. is from the University of Washington, has served as principal or co-principal investigator on over \$5 million in federal research grants. He offered these insights into the complex world of ParaTechs research: "Lots of people study the human genome, but the genomes of the insect world have largely been ignored — up to now. Our work studies the particular group of insect-infecting viruses called baculoviruses. We use them to grow the key proteins that are used in creating natural products — and we've been able to make that entire process work five to 10 times better. The benefit to furthering the scientific community? Significant, to say the least." Fath-Goodin, who received her Ph.D. in Switzerland and completed post-doctoral work in plant biology at UC Berkeley, invests her time in managing existing grants and perfecting processes that will allow the direct application of ParaTechs' research for both human and crop-related use. Together, these two scientists have led their research team to several amazing discoveries.

All of these factors together make ParaTech a promising company to watch — whether you're a potential investor, a medical professional, a person interested in plant protection, or, of course, a caterpillar!



Gina Greathouse of Commerce Lexington and Dean Harvey of UK's Innovation and Commercialization Center collaborate as members of the Bluegrass Business Development Partnership to promote and support new and existing businesses in Central Kentucky. Contact them at (859)225-5005.



> If you know of other entrepreneurial, e-type ventures in the Lexington area that deserve to be featured in this series, please email Gina Greathouse at ggreathouse@commerceland.com.