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PRESS RELEASE

Student project leads to founding of startup DIANA Biotechnologies

A new startup, DIANA Biotechnologies, has been founded at the Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences (IOCB Prague) to develop a unique technology created by postgraduate student Václav Navrátil with the potential to significantly improve disease diagnostics and accelerate the development of new drugs. The startup has earned the trust of investors at bpd partners, who are putting more than 3 million EUR into the project.

The new company will develop a technology known as DIANA, or DNA-linked Inhibitor Antibody Assay, which was developed by Navrátil and colleagues in Jan Konvalinka's laboratory at IOCB Prague. The unique method allows for ultrasensitive quantification of enzymes and other proteins in a solution, e.g. human blood, urine, or saliva. In practice, it should help doctors diagnose certain diseases (cancer and various infectious diseases, for instance) at an earlier stage than is possible with existing methods. Moreover, the technology has a second important application: It enables screening of large numbers of chemical substances for enzyme inhibitors and the identification of suitable compounds for further development as drug candidates.

"Our technology allows for the detection of enzymes in blood with sensitivity up to several orders higher than that of contemporary methods, and that's why we see a range of new and important applications for it," explains Navrátil, CEO of the new startup. *"DIANA Biotechnologies will continue to advance the technology and also offer a variety of services and products for diagnostics and drug discovery. Thanks to support from investors, we'll also be able to start our own drug development program. In collaboration with universities, the Czech Academy of Sciences, and other companies, we want to become a regional drug development center connecting academic research and industrial development."*

DIANA Biotechnologies is being set up with support from the academic incubator of biotechnologies i&i Prague as well as from investors at bpd partners, who plan to provide over 3 million EUR in the next few years.

"For some time now, our group has been investing in startup projects and providing direct support for certain projects in the fields of biotech and medtech," says bpd partners representative Miroslav Tvrzník. *"DIANA Biotechnologies isn't our first joint project with the IOCB Prague. It's one of our most interesting undertakings, and we sense a lot of potential in it. We're pleased that we succeeded in establishing cooperation with the team at DIANA Biotechnologies and with the IOCB, and we believe that in addition to support for innovative research, our participation in the project will give rise to an interesting synergy with other projects that our group is involved in both here in the Czech Republic and elsewhere in the world."*

The DIANA technology was developed at IOCB Prague, the same place the great discoveries of Antonín Holý were made. The institute is known for its efforts to systematically advance the results of basic research applicable in practice and facilitate their transition to the world of business, which is overseen by the institute's subsidiary IOCB Tech (formerly IOCB TTO).

“It’s fantastic to see that among the successful projects originating in our laboratories and attracting the interest of large commercial partners, achievements are also being made in research conducted as part of postgraduate studies,” says Martin Fusek, head of IOCB Tech and deputy director of the IOCB Prague. “The technology developed by Václav Navrátil and his colleagues is currently protected by two international patent applications. We’ve also provided a leading American university and a global pharmaceutical company with one-time licenses. And a positive result of this, of course, is the entry of investors from bdp partners into the company we’ve founded.”

The founding of the new company to develop the results of basic research was also welcomed by the president of the Czech Academy of Sciences, Eva Zažímalová: *“At the Czech Academy of Sciences, we consider collaboration with the sphere of application an inseparable part of research. I see the DIANA Biotechnologies project as another excellent example of fulfilling this important aspect of our work.”*

The quality and potential of the DIANA project is reflected in the prestigious Werner von Siemens Award for the most significant result in the field of development and innovation, which was recently awarded to Navrátil and his team.

The CEO of Siemens Czech Republic, Eduard Palíšek, had the following to say about the founding of the DIANA Biotechnologies startup: *“The goal of the Werner von Siemens Award is to demonstrate to young scientists, students and their teachers that the work they do is immensely valuable and worthy of recognition. I’m delighted that only six months after Václav Navrátil and his team won the Werner von Siemens Award, their exceptional technology is being given an opportunity for professional development. I trust that this superb example will motivate other students and young scientists to submit applications to the Werner von Siemens Award competition this year.”*

DIANA Biotechnologies website: www.dianabiotech.com

DIANA (DNA-linked Inhibitor Antibody Assay) is a novel analytical method suitable for diagnostics and drug discovery developed by Václav Navrátil and colleagues in Jan Konvalinka’s laboratory at the Institute of Organic Chemistry and Biochemistry of the CAS. DIANA allows for ultrasensitive enzyme detection and can detect zeptomoles of targets in complex biological matrices. The sensitivity is up to several orders of magnitude greater than that of other contemporary methods. It should, therefore, facilitate timely diagnostics in the early stages of various illnesses, such as infectious and cancerous diseases, which in turn could lead to dramatically improved therapy possibilities. At the same time, DIANA enables the highly efficient identification of biological substances (e.g. enzyme inhibitors) that can form the basis for development of new drugs. DIANA overcomes the limitations of current state-of-the-art methods with its sensitivity, accuracy, linear range, and applicability to difficult medicinal targets, thus it is best suited for early phases of drug development. Other team members working on the development of the DIANA technology were Pavel Šácha, Jiří Schimer, Jitka Zemanová, Pavel Majer, and Jan Konvalinka. Martin Dienstbier and Jaromír Zahrádka of i&i Prague handled the commercialization of the technology, and the success has been made possible with the support of Martin Fusek and Zdeněk Hostomský, director of the IOCB Prague.

Scientific article on the DIANA technology: Václav Navrátil, Jiří Schimer, Jan Tykvart, Tomáš Knedlík, Viktor Vik, Pavel Majer, Jan Konvalinka, Pavel Šácha; DNA-linked Inhibitor Antibody Assay (DIANA) for sensitive and selective enzyme detection and inhibitor screening, *Nucleic Acids Research*, Volume 45, Issue 2, 25 January 2017, Pages e10, <https://doi.org/10.1093/nar/gkw853>.

The DIANA technology will undergo further development at DIANA Biotechnologies (www.dianabiotech.com), which was founded in July of 2018.

Václav Navrátil has a degree in biochemistry and theoretical chemistry from the Faculty of Science at Charles University, where he is currently completing his doctoral studies. His primary area of research

in the laboratory of Jan Konvalinka at IOCB Prague has been the development of various bioanalytical methods, which led to the development of DIANA. Navrátil is now moving to the newly founded DIANA Biotechnologies, where he will serve as the company's CEO.

The Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences / IOCB Prague (www.iocb.cz) is a leading internationally recognized scientific institution whose primary mission is the pursuit of basic research in chemical biology and medicinal chemistry, organic and materials chemistry, chemistry of natural substances, biochemistry and molecular biology, physical chemistry, theoretical chemistry, and analytical chemistry. An integral part of the IOCB Prague's mission is the implementation of the results of basic research in practice. Emphasis on interdisciplinary research gives rise to a wide range of applications in medicine, pharmacy, and other fields that make life better.

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