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India's Polyclone collaborate with Greifswald Uni to engineer enzyme

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Singapore: India based Polyclone, a biotech company with expertise in molecular, cell and computational biology has collaborated with the Dept. of Biotechnology & Enzyme Catalysis of the Institute of Biochemistry at Ernst-Moritz-Arndt University Greifswald for a joint research project to engineer transaminase enzymes to broaden substrate scope as these biocatalysts are useful to make chiral compounds for the chemical and pharmaceutical industry.

The joint research project will be headed by Prof. Uwe Bornscheuer and an application for funding has been submitted. The joint research project will leverage Polyclone's in silico enzyme engineering framework (eEF) to predict suitable modifications and Prof. Bornscheuer's group's in vitro expertise on transaminase enzymes to validate the in silico predictions.

"This collaboration will strengthen our research on engineering transaminases as Polyclone's advanced computational tools will substantially help us in understanding different transition states of the enzyme to guide improvement of these very important biocatalysts" said Prof. Uwe Bornscheuer.

"This collaboration creates a fruitful feedback loop: Polyclone will predict how we can improve our enzymes, and we will check this experimentally. The results will help us in deepening our understanding of the transaminases, and Polyclone to validate and further strengthen their computer modeling algorithms" said Jun.-Prof. Matthias HÃ?Æ?Ã?Â¶hne.

"The advances in molecular modeling and molecular dynamics techniques have been underutilized when it comes to understanding the behavior of biocatalysts. Many conformational and quantum mechanics attributes like reaction coordinates of the transition states, electrostatic potential, pi-pi interactions and many more such descriptors provide an insight into the

enzyme mechanism like never before. We hope this collaboration will address many such challenges in the future and help pave the way for better productivity of critical enzymes" said Mr. Naveen Kulkarni, CEO of Polyclone.