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Passionate on Phenotypic Screening

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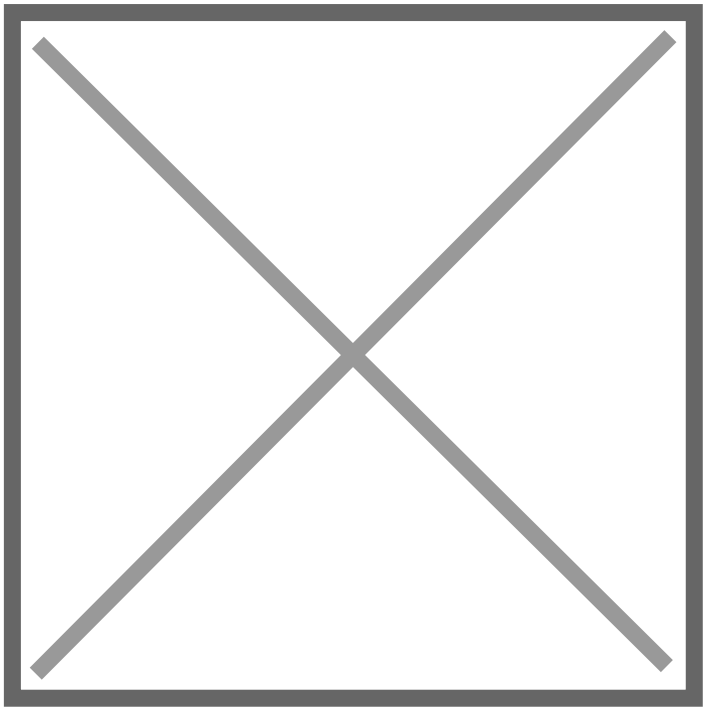

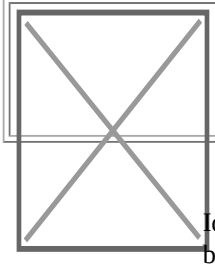

Drug Discovery

Dr Chaitanya Saxena
CEO, Shantani Proteome Analytics, Pune

Identifying a target for a small molecule drug from a bevy of probable ones has always been one of the central challenges in drug discovery. At the pinnacle of trying to provide the technology that can aid in making the target screening process more accurate is Dr Chaitanya Saxena, CEO, Shantani Proteome Analytics.

Currently heading this upcoming start-up's research activities, Dr Chaitanya is also one of its co-founders. Having worked in Eli Lilly in the US after his PhD, he decided to return to India to start an innovative technology company in early 2010. Since then, he along with his team have developed a Ã¢â?¬Å?subcellular location specific target capturing probeÃ¢â?¬? mechanism for screening potential drug candidates that can reduce timelines and expenditure required in drug discovery.

Talking avidly about what the proprietary technology is all about Dr Chaitanya says, Ã¢â?¬Å?We found out that the critical point during drug discovery was that during phenotypic screening the target(s) and mechanism of the candidate molecule remains unknown, even if we know the molecule is working. What we did was to couple the candidate molecule with a subcellular loaction-specific probe and then carry out the normal functional assays to identify the location at which the molecule is most active. We found that, this screening process would help to fractionate the proteome to one-third of the original number, thus narrowing down the targets and eliminating the false positives.Ã¢â?¬?

Once that is done the specific target could then be identified using mass spectrometry. This helps elucidate the position as to where the molecule is acting in the cell and also identify the concentration at which the molecule is required for its activity. What it also does is allow for a molecule to be screened against other non probable cell targets, thus eliminating those molecules that could be toxic to other targets in the cell early on, and thus define a toxicity profile for the molecule. Dr Chaitanya remarks that the existing methods do not allow target identification or correlating off-targets with toxicity, thus this method offers an important value add for target based drug discovery. Dr Chaitanya also reveals that a patent for this method has already been applied.

Originally trained in chemistry, Dr Chaitanya worked as a production chemist at Lupin Laboratories for a year

after completing his Masters from Devi Ahilya University. A quest for higher education, helped him tap his interest in the biological aspect of drugs, and led him to pursue a research program at National Institute of Mental Health and Neurosciences (NIMHANS). Encouraged by his positive experience at NIMHANS, he went on to complete his PhD at the Ohio State University.

Moving ahead, Dr Chaitanya hopes to further validate the existing platform in order to offer it as a service or licensed technology to any institution that undertakes phenotypic screening of molecules. Grants from government organizations like DBT have enabled them to initiate different programs, including one with a molecule for Type II diabetes that would aid in studying glucose-dependant insulin secretion. Through this program he aims to identify new biological targets for Type II diabetes treatment.

Rahul Koul