DANISCO Press Release

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Swift and precise enzyme and culture screening

New robot system put to work at Danisco

Capitalising on the state-of-the-art technology within robotics, Danisco has markedly strengthened its biotechnology capacity within enzymes and cultures. The robotic system significantly enhances Danisco's capacity to find and isolate new enzymes and cultures. Food processing enzymes are used by Danisco's customers to produce foods with improved physical properties, e.g. texture. Cultures are used for cheese, yoghurt and some non-dairy applications including bio preservation.

'We produce enzymes and cultures for the food industry the world over, states Andrew Morgan, Scientific Director. In nature, there is constant evolution. We capitalise on that naturally-occurring process in the laboratory, simply accelerating and guiding the process to identify or design enzymes and cultures with the properties needed by our customers.'

'Some of the enzymes and bacterial culture strains that we start to work with can be deficient in some of the properties which are necessary for the applications our customers demand. An enzyme or culture might have, for example, only three of the four desired characteristics. Thus, we need to improve the enzyme or culture so that it embodies all four properties optimally. With an enzyme, we do this by making variants of the enzyme and then seek to identify those that have the desired properties' explains Andrew Morgan.

However, identifying the enzyme that possesses exactly those desired properties can be an amazingly complicated and lengthy process if done manually. Perhaps 1 million variants need to be examined to find the right one.

'Sometimes we have enough information and possibilities to develop a screening process that is relatively straightforward to implement and without the need for a robotic system.Unfortunately, this is not always possible and this is where we have to employ the robot. By using a robot system, we can use more sophisticated identification methods and screen variants very much more efficiently. With a robot system we are able to screen over 20,000 variants per day, whereas we could only manually check a few hundred,' points out Andrew Morgan.

The technology means that Danisco can accelerate the development of new enzymes and cultures so customers' needs concerning new products are met far more rapidly.

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The robot system will also provide further options for development of other Danisco's ingredients; for example, in the area of flavours.
Senior Vice President, Business Development, Leif Kjærgaard, comments about the investment:
'We view this as an element in our continued updating of research activities so that we maintain our solid competitive position within food ingredients.'

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