

# IMPORTANT PUZZLE PIECES FOR THE **DEVELOPMENT** OF PHARMACEUTICAL PRODUCTS

One of the largest diabetes care providers in the world is a regular visitor to a research facility within Science Link's network.

The Danish multinational pharmaceutical company Novo Nordisk is one of the largest diabetes care providers in the world. Researchers from Novo Nordisk's two main R&D sections, the Biopharm Research Unit and the Diabetes Research Unit, are regular visitors at the MAX IV Laboratory and measurements at the facility have provided important puzzle pieces in the development of the company's products.

One such example is the investigation of a hormone involved in the production of insulin in the human body. Glucagon-like peptide-1 (GLP-1) is secreted in the gut and in addition to stimulating insulin secretion it has been shown to reduce and control blood sugar and body weight. The hormone has therefore attracted a lot of attention as a potential treatment of type-2 diabetes patients. Novo Nordisk is currently marketing the type-2 diabetes drug Victoza, which is based on the molecule Liraglutide. Liraglutide is an analog to GLP-1, i.e. it is very similar to GLP-1, but with some differences that make it more suitable as a medicinal substance.

## Figure **NUMBER ONE**



**Figure 1** The structure of GLP-1 (black ribbon) bound to its receptor GLP-1R.

In their effort to further understand the bodily functions of GLP-1 and to develop other, more efficient analogs, researchers from Novo Nordisk used the Molecular Crystallography facilities at MAX-lab to determine the molecule's 3D structure when bonded to its receptor in the body.

Novo Nordisk is one of many companies within the Life Science industry, that has drawn benefits from the world-class research infrastructures at hand.



Science Link is a network between leading research facilities of photon and neutron sources and its users. The project aims to support and encourage innovation and entrepreneurship in the Baltic Sea Region. Apart from the research facilities, the network also includes scientific institutes, universities and regional organisations that serve as service and promoting units. Science Link is part-financed by the European Union (Baltic Sea Region Programme) and involves 20 partners from 9 countries during the project period 2012 to 2014.

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#### Research facilities

