

Novo Nordisk accounts for almost 70% of the total Danish pharmaceutical industry, yet, measured on turnover, it is only 15% to 20% the size of one of the world giants. Headquartered in Denmark, Novo Nordisk employs more than 10,000 people in 30 countries. Group net turnover is CAD 1.8 Billion. The Bio Industrial Group (enzyme production) alone accounts for CAD 550 Million in sales.

The importance for the Danish economy of the bio-industrial complex can be seen from the export figures, where this sector accounts for 27% (approximately CAD 11 Billion) of total Danish export value. More than half of the export revenue comes from the foodstuff industry, while insulin, penicillium and enzymes alone account for one-third of total exports from the chemical/pharmaceutical sector. In terms of production and export value per capita, Denmark holds a leading position relative to other OECD countries.

3. Government research and development programs

Cooperation between private enterprise and public research in Denmark has always been excellent. Government support to industrial R & D consists of two main elements: (1) Support for the technological infrastructure in order to assist small and medium-sized firms; (2) Co-financing schemes and programs aimed at high technology promotion, and collaboration among firms, particularly in selected industrial sectors. Several schemes or programs are in progress, among these are: the Biotechnology Research Program; the Food Technology Development Program; and support for Danish participation in EUREKA projects.

Public research is performed at universities and at sectoral research institutes under the auspices of various governmental ministries. Of special importance are a number of independent, non-profit research institutes under the Academy of Technical Sciences serving primarily the private sector.

Danish overall R & D efforts have increased from just under 1% of GDP in 1979 to 1.52% of GDP in 1989 with the major increase in R & D effort taking place in the private enterprise sector. Half of the total Danish R&D expenditure of CAD 2.2 Billion in 1989 was financed by the private enterprise sector.

Biotechnology is one of the most internationally oriented areas of Danish industry, where R&D is on an international level and well above the average for Danish industry as a whole. This, together with a strong national tradition in basic research in biology and the increasing application of biotechnology in many sectors, places Denmark in a favourable position. For this reason, efforts to boost both basic research and strategic research in biology and biotechnology will continue.