Schweizerische Anorexia Nervosa Stiftung
Fondation Suisse d'Anorexie Nerveuse
Fondazione Svizzera d'Anoressia Nervosa

The Brain-Derived Neurotrophic Factor / TrkB-Receptor Pathway as a Possible New Target for the Pharmacotherapy of Anorexia Nervosa (1)

(project no. 04-10 A)

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Aim

To validate the concept that inhibition of the BDNF / TrkB system by blockade of TrkB receptors is suitable for the treatment of anorexia nervosa.

Background

The most serious pathophysiological problem in patients with anorexia nervosa is a life-threatening loss of fat and lean body mass as a consequence of a persistent negative energy balance. The melanocortin-4 receptor (MC4R) is part of an important central pathway involved in the regulation of energy intake and expenditure. In previous studies we and other authors have demonstrated that brain derived neurotrophic factor (BDNF) and its TrkB receptor are downstream mediators of the MC4R. Selective overexpression of BDNF in the hypothalamus of experimental animals lead to a reduction in food intake and an increase in physical activity, two symptoms also seen in patients with anorexia nervosa. The TrkB receptor could therefore be a promising target for the pharmacotherapy of anorexia nervosa.

Method

The concept will be studied by an immunological approach. Antibodies against the TrkB receptor will be used as pharmacological tools *in vitro* and *in vivo*.

Execution

In a first series of experiments polyclonal and monoclonal Abs against the TrkB receptor will be produced and their pharmacological profile will be characterized.

In a second series of experiments the general pharmacological properties of selected anti-TrkB mAbs and their scFv derivatives will be further studied in acute and chronic experiments in rodents.

The project is financed by the Swiss Anorexia Nervosa Foundation.