

# Blood test predicts chance of dementia

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VIB (the Flanders Institute for Biotechnology, Belgium) researchers connected to the Born-Bunge Institute and the University of Antwerp discovered the amount of growth factor progranulin in blood is a predictor of Frontotemporal Dementia (FTD). Progranulin plays a major role in the survival of brain cells. People producing less progranulin have higher risk of contracting FTD. The researchers developed a test, measuring the amount of progranulin in the blood thus predicting a person's risk. This offers possibilities for early detection.

Frontal lobe dementia (Frontotemporal Dementia, FTD) strikes people at an earlier age. After Alzheimer's disease, FTD is the form of dementia that occurs most frequently in patients younger than 65. In FTD, the disease process starts in the frontal lobe where large numbers of brain cells begin to die off. The frontal lobe is the foremost part of the brain and constitutes about 30% of the brain. Among other things, it is involved in regulating behavior, movement and mood, and it is responsible for cognitive functions such as language. So, the first clinical signs of FTD are changes in behavior and personality, and then, in a later stage of the disease, the loss of memory functions.

## **Progranulin: a main actor**

Genetic research has shown previously that there is a genetic defect in chromosome 17 in a large percentage of the families with FTD. There are two genes in chromosome 17 that, if a defect occurs, cause a heritable form of FTD. In 1998, defects were found in the gene for the tau protein, a substance that appears in the protein clots in the brains

of FTD and Alzheimer's patients. In 2006, Christine Van Broeckhoven's team discovered hereditary defects in the gene for the progranulin protein. They predicted that people with these hereditary defects produce only half of the normal amount of progranulin.

This has been confirmed by Christine Van Broeckhoven's team, who have shown that a shortage of this growth factor leads to the dying off of brain cells in the frontal lobe and in this way causes FTD. New results indicate that progranulin also plays a role in the death of brain cells in other diseases of the brain, such as Alzheimer's disease and Amyotrophic Lateral Sclerosis (ALS).

On the basis of their research, Kristel Slegers, a scientist in Van Broeckhoven's team, has developed a test for measuring the quantity of progranulin in the blood in a simple way. This test enables one to determine whether someone has an increased risk of FTD due to a shortage of progranulin long before symptoms appear. The blood test can be used on a large scale and is much more simple and user-friendly than the current genetic tests. This finding also offers prospects for the early detection of FTD caused by a shortage of progranulin.

However, it is still too early for a medicine to combat FTD. Further scientific research is needed to determine how a shortage of progranulin can be restored to normal.

Source: VIB (the Flanders Institute for Biotechnology)

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