

Autoantibodies – a novel contributor to chronic pain in fibromyalgia?

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My TOBeATPAIN project is focused on chronic pain in Fibromyalgia (FM).

Previously, the group, together with two research groups from Liverpool and Kings College London, found that antibodies purified from FM patients' blood when injected to mice transfer disease symptoms. Thus, after injection of FM antibodies, the mice develop signs of increased pain upon pressure applied to different tissues as well as fatigue, which are common symptoms.

FM antibodies may establish a whole new way of looking at this disease.

We are currently examining if these autoantibodies directly change processes in the brain. I am doing this by culturing different cell types in dishes and adding antibodies from FM patients or controls to the cells growing solution. I then analyze if they bind to the cells or not, and if their activity changed, namely by analysis of gene expression of factors that are linked to pain. I have for example used a neuronal cell line, N2A, and when I compared cells that had been exposed to FM or HC antibodies, I found that FM antibodies caused a significant increase in expression of ion channel genes that are elevated in the CNS also in other animal models of chronic pain. Contrarily, no difference in gene expression was found in human astrocytes (most common cell type in the brain) cultures exposed to FM antibodies. This screening will continue in different immune cells, including human microglia, also present in the brain, to identify potential FM antibody-mediated changes in the brain.



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