ALMAC

Partnering to Advance Human Health

Almac Voice

# Mind Minders

ALMAC
Partnering to Advance Human Health

Almac Voice

# Mind Minders

## Chemokines may play a role in the inflammation associated with Schizophrenia

If you've watched TV, a You Tube video, or even been on a bus in recent years, you will have noticed a rise in posters and adverts raising awareness of the symptoms of mental health disorders. These have arisen through national campaign efforts to educate the public about how to spot these disorders and even the tech-savvy youth of today have been doing their bit, using short form content to share what their own symptoms look like and strategies they have developed to cope with them.

While social media can be a great place to find community and acceptance from others who struggle with the same difficulties, mental health conditions need to be diagnosed by a specialist or psychiatrist, which can often prove challenging as many disorders are poorly understood and present in non-uniform ways. However, such disorders sometimes have linked physical changes; it has been noted that in a third of patients with schizophrenia for example, some level of neuroinflammation or a peripheral proinflammatory state is present. Key players in inflammation are chemokines, and recently Ermakov et al. have done a systematic review of the genetic association of chemokine polymorphism in schizophrenia.

The data and conclusions from over 2000 articles were reviewed with some interesting findings: the effect of a genetic polymorphism of chemokine CCL2 (MCP-1) which positively regulates chemokine expression was found by one paper to have a protective effect on patient susceptibility to schizophrenia, but another concluded that the same polymorphism produced a greater prevalence of the disorder. Others still found no significant associations between the two. Equally, evidence was found that in the blood, the level of CCL2 increased and CXCL8 (IL-8) was dysregulated in patients with certain types of schizophrenia. Higher levels of CXCL8 were also found in cerebrospinal fluid in treatment resistant schizophrenia as well as dysregulation of the chemokine in certain areas of the brain.

A noteworthy article showed that schizophrenia patients could be subdivided in different groups based on the differences in chemokine expression levels, demonstrating the physical non-uniformity of the disorder. However, much of the work done on human patients can only show association between chemokine dysregulation and the disorder, so animal studies were reviewed in order to better understand the pathogenesis of schizophrenia; while the disorder is linked to both environmental and genetic factors, it was found that abnormal expression of CX3CL1 was accompanied by schizophrenia symptoms.

While the review mentioned other chemokines, it was noted that chemokines were underwhelmingly studied in comparison to cytokines in schizophrenia. With over 45 known chemokines to choose from, there are plenty more avenues to study the disorder with the eventual goal of defining biomarkers or new therapeutic

targets for the disorder. But until that point, the bus posters and TikTok stars will hopefully be able to raise enough awareness of symptoms to guide those struggling to visit their friendly neighbourhood psychiatrist!

Almac can provide a whole compliment of chemokines in human and murine forms to aid in your schizophrenia research. The catalogue chemokines are supplied in their native form or conjugated to biotin or AlexaFluor647®. Custom chemokines and peptides can be provided upon request, with a variety of site-specific modifications. Almac's chemokines and peptides are chemically synthesised, allowing for total control over sequence and labelling.

Main article: Ermakov EA, Mednova IA, Boiko AS, Buneva VN, Ivanova SA. Chemokine Dysregulation and Neuroinflammation in Schizophrenia: A Systematic Review. Int J Mol Sci. 2023 Jan 22;24(3):2215. doi: 10.3390/ijms24032215. PMID: 36768537; PMCID: PMC9917146.

**Contact us:**

**Global HQ**
+44 (0) 28 3833 2200

**US HQ**
+1 (215) 660 8500

**Ireland**
+353 90 646 0200

ALMAC
Partnering to Advance Human Health



©2025 Almac Group Limited. All rights reserved