The release of tryptase from mast cells promote tumor cell metastasis via exosomes.

Metastasis is the leading cause of lung cancer-related deaths. It has been shown in a study that there may be a link between metastasis action and mast cells (MCs). Cancer cells release exosomes which can then be taken up by MCs. Exosomes were isolated from a lung cell line which were then examined to view the uptake of the exosomes by MCs. These exosomes contain a stem cell factor (SCF) to MCs which activate the MCs, causing tryptase release. This release can increase the proliferation of human umbilical vein endothelial cells (HUVECs). These findings show a potential mechanism for metastasis where exosomes from cancer cells transfer SCF to mast cells, causing their activation and henceforth releasing tryptase.

Xiao H, He M, Xie G, Liu Y, Zhao Y, Ye X, Li X, Zhang M, The release of tryptase from mast cells promote tumor cell metastasis via exosomes, BMC Cancer, 2019, 19, 1-9.

Mast Cells in Gut and Brain and Their Potential Role as an Emerging Therapeutic Target for Neural Diseases.

A link has been demonstrated between intestinal microbiota and the brain, indicating that the gut inflammatory *milieu* has a critical role in inducing certain nervous conditions such as stress, anxiety and neuroinflammation. There has been focus on the potential of using mast cells (MCs) as a target to mediate neural diseases via this microbiota-brain link.

Microbiota helps to maintain homeostatic conditions in the body by controlling many metabolic functions and conditions. It can also influence certain emotional behaviour through different mechanisms. The *microbiota-gut-brain axis* is a complicated system that consists of tissues and organs communicating through a complex multidirectional manner via endocrine, circulatory and neural pathways to preserve the homeostasis of the body.

MCs are present in all layers of the gastrointestinal tract as well as the brain. It is likely that MCs are the crucial neuroimmune which connects the link of stress, anxiety, depression, and pain to the microbiota-brain axis. This is shown by the many ways MCs interact with this system.

MCs mediators are distributed in large quantities in the gut of IBS patients and they have been linked to having a big role in host-microbiota communications. Bacteria and fungi have been thought to induce or reduce MC activation, allowing them to maintain their stability depending on conditions. Other connections include the fact that MCs interact with microbiota and the nervous system through 5-HT release. Brain-MC interactions is a mechanism with links both stress responses and gastrointestinal symptoms through involving the vagal nerve pathway. These many different interactions support that MCs can potentially contribute to the balance in gut homeostasis and the influence of the *microbiota-gut-brain axis* on stress and anxiety.

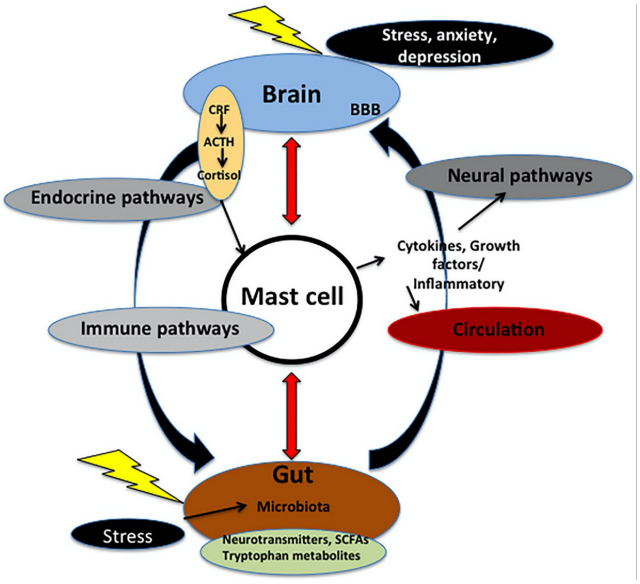

Figure 1) Microbiota–gut–brain axis

Traina G, Mast Cells in Gut and Brain and Their Potential Role as an Emerging Therapeutic Target for Neural Diseases, Frontiers in Cellular Neuroscience, 2019, 13, 1-13.