

C0r0n@ 2 Inspect

Review and analysis of scientific articles related to experimental techniques and methods used in vaccines against c0r0n@v|r|us, evidence, damage, hypotheses, opinions and challenges.

Sunday, July 18, 2021

Neuroinflammation and neurodegenerative diseases caused by graphene oxide

Reference

hen, HT; Wu, HY; Shih, CH; Jan, TR (2015). A Differential Effect of Graphene Oxide on the Production of Proinflammatory Cytokines by Murine Microglia. *Taiwan Veterinary Journal*, 41 (03), pp. 205-211. <https://doi.org/10.1142/S1682648515500110>

Facts

1. Microglia or microglial cells are specialized cells in neuroimmunity, present in nervous tissue. Their function is similar to that of phagocytes, therefore they are responsible for the elimination of substances and waste, eliminating tumors, microorganisms or invasive agents. When activated due to any damage to the brain or nervous system, they secrete the aforementioned cytokines or cytokines, known for their implications in the most serious conditions of c0r0n @ v | rus, see (Albarzanji, ZN; Mahmood, TA; Sarhat, ER; Abass, KS 2020 | Rizzo, P.; Dalla-Sega, FV; Fortini, F.; Marracino, L.; Rapezzi, C.; Ferrari, R 2020).
2. The study shows that murine microglia (a rodent similar to a [mouse](#)), were treated with reduced graphene oxide at a dose of (1–25 µg / mL) for 24 hours, produced pro-inflammatory cytokines, suppressing the production of IL-1β (this is interleukin). Interleukin is a cytokine whose function within the immune system is to regulate the activation, proliferation, production of antibodies, as well as the marking of the points where they must perform their task, among other issues. In other words, graphene oxide affects the normal functioning of the immune system causing it to be inhibited or not function properly.
3. It is also stated that "*lysosomal permeability and alkalinity increased in GO-treated microglia, while cathepsin B and ICE activity decreased. Taken together, these results demonstrated that GO exposure differentially affected the production of pro-inflammatory cytokines, which is associated with modulation of the lysosomal pathway of cytokine processing*". Important details are found in this statement. The first is the increase in the alkalinity of the microglia. This is not at all trivial since the increase in alkalinity in brain cells or of the nervous system necessarily implies a low pH that affects the the development of psychiatric and neurodegenerative disorders, as indicated in the following study from Johns Hopkins University (Prasad, H.; Rao, R. 2018) that was widely disseminated through the media [RTVE](#) , [EFE](#) . This directly links with the analysis carried out on the entry regarding [graphene oxide and its ability to overcome the blood-brain barrier](#). Secondly, cathepsin B (a protein responsible for destroying the proteins that cause amyloid plaque that is responsible for Alzheimer's symptoms) and ICE (which is the interleukin-converting enzyme IL-1β) had their activity reduced, therefore that affected its proper functioning.

In fact, thirdly, this also affected the modulation of the lysosomal pathway, this is the lysosomal degradation that affect the correct cell function.

4. Reviewing the scientific literature, recent evidence was found that neuroinflammation caused by " *activated microglia and astrocytes may contribute to the progression of pathogenic damage to substantia nigra (SN) neurons. Similarly, oxidative stress may be caused by a variety of stressors, such as pollutants in the environment or mitochondrial dysfunction*", see (Dowaidar, M. 2021). This statement fits with the observations of the article analyzed in this entry, since graphene oxide causes the activation of microglia. It also fits with the work of (Prasad, H.; Rao, R . 2018) by influencing the acidification of ApoE4 astrocytes (astrocytes are glial cells responsible, among other functions of the development of the central nervous system.) It also fits with what was reported by (Alpert, O.; Begun, L.; Garren , P .; Solhkhah, R. 2020) that analyze clinical cases of depression related to cytokine or cytokine storm in patients of c0r0n @ v | rus.

Reviews

1. The article shows that graphene oxide "GO" causes alterations in the microglia cells of the central nervous system, which affect the functioning of the immune system. This significantly reduces the ability to face infections and diseases, leaving the animal or person inoculated with graphene oxide in a precarious situation in the face of any eventuality or biological or chemical risk.
5. In addition to alterations in the immune system, neurological damage, oxidative stress, mitochondrial dysfunction (due to the [interruption of their homeostasis](#)) and the reduction of interleukin and ICE values that in turn cause alkalinity in the microglia, are noted. directly linked to the reduction in pH that generates neurodegenerative diseases.
6. It can be concluded that the potential presence of graphene oxide in vaccines against c0r0n @ v | rus can induce neuroinflammation, the development of neurodegenerative diseases due to alkalinity and low pH level in brain tissue and permanent neurological damage.

Bibliography

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3. Dowaidar, M. (2021). Neuroinflammation caused by activated microglia and astrocytes can contribute to the progression of pathogenic damage to substantia nigra neurons, playing a role in Parkinson's disease progression. <https://osf.io/preprints/ac896/>

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5. Rizzo, P .; Dalla-Sega, FV; Fortini, F .; Marracino, L .; Rapezzi, C .; Ferrari, R. (2020). COVID-19 in the heart and the lungs: could we Notch the inflammatory storm? *Basic Research in Cardiology*, 115 (31). <https://doi.org/10.1007/s00395-020-0791-5>