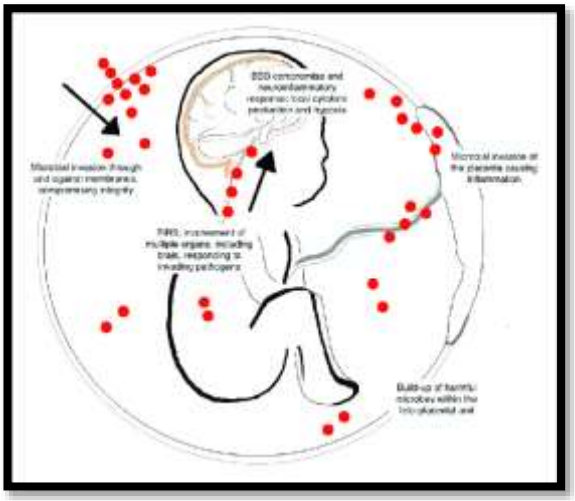
Molecular Hydrogen: Improves behavioral abnormalities of offspring during pregnancy

KYK Hydrogen Water | 1,500 PPB of DH | KYK Co., Ltd. (South Korea)



The association between maternal immune activation (MIA) and subsequent neurodevelopmental disorders in offspring has become increasingly recognized. MIA against viral or bacterial infections influences the developed fetal central nervous system (CNS), and increases the risk of schizophrenia and autism spectrum disorder (ASD) later in life. MIA has a strong impact on microglial development, and microglial disturbance disrupts neurogenesis, neuronal migration, and myelination, thus leading to consequent impairments in the brain function of the offspring. MIA is believed to be a disease primer. MIA and MIA-induced fetal neuroinflammation stimulate the generation of reactive oxygen species (ROS) and disturbances in pro-inflammatory cytokine production in the fetal brain. These changes lead to direct and indirect death or dysfunction of neuronal and oligodendrocyte cells, which are considered to be the main targets of fetal brain injury.

Molecular hydrogen (H_2) plays a neuroprotective role in the fetal brain against injury caused by oxidative stress and inflammation. H_2 acts as an antioxidant that selectively neutralizes hydroxyl radicals (•OH) and protects the brain from injury. H_2 reacts with strong oxidants, such as •OH, but remains mild enough to neither disturb the metabolic redox reactions nor affect ROS signaling. Studies have found the therapeutic and preventive effects of H_2, and have indicated that H_2 has other properties as well, including anti-inflammatory and anti-apoptotic effects. Administration of H_2 in pregnant women significantly increases H_2 concentration in the fetal brain, through the maternal-fetal interface. Drinking hydrogen-rich water is most effective yet easiest way to administer H_2 in pregnant women. In conclusion, H_2 prevents offspring from developing serious brain injuries later in life.

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