

JOINT EVENT

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Evolution of microbial quorum sensing to human global quorum sensing: an insight into how gap junction intercellular communication might be linked to the global metabolic disease crisis**James E Trosko**

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The first anaerobic organism extracted energy for survival and reproduction from its source of nutrients, with the genetic means to ensure protection of its individual genome but also its species survival. While it had a means to communicate with its community via simple secreted molecules (quorum sensing) the eventual shift to an aerobic environment led to multi-cellular metazoan organisms, with evolutionary-selected genes to form extracellular matrices, stem cells, stem cell niches and a family of gap junction or “connexin” genes. These germinal and somatic stem cells responded to extracellular signals that triggered intra-cellular signaling to regulate specific genes out of the total genome. These extra-cellular induced intra-cellular signals also modulated gap junction intercellular communication (GJIC) in order to regulate the new cellular functions of symmetrical and asymmetrical cell division, cell differentiation, modes of cell death, and senescence. Within, the hierarchical and cybernetic concepts differentiated by neurons organized in the brain of the *Homo sapiens*, the conscious mind led to language, abstract ideas, technology, myth-making, scientific reasoning, and moral decision-making, i.e., the creation of culture. Over thousands of years, this has created the current collision between biological and cultural evolution, leading to the global “metabolic disease” crisis.

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