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Cellular rejuvenation function of Ginsenoside 20(S)-Rg3 and its ageing-proteome analysis

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Aging is a multifactorial process resulting from the accumulation of cellular damage over time, leading to physiological deterioration, increased mortality and eventual death. Ginseng is well known in herbal medicine as a tonic and restorative agent. The main molecular ingredients responsible for the actions of ginseng are the ginsenosides (also called ginseng saponins), which are amphiphilic molecules comprising a hydrophobic backbone of aglycone (a hydrophobic four-ring, steroid-like structure) linked to hydrophilic carbohydrate side chains. In previous studies for ginsenoside Rg3, its functions are known to be sodium channel inhibitor in brain disease, anti-angiogenesis effect in diabetic disease, and various anti-cancer activities. However, the effects of ginsenoside Rg3 on the aging/rejuvenation are not reported yet. The senescence associated- β -galactosidase (SA- β -gal) activity was dramatically decreased in 20(S)-Rg3-treated human dermal fibroblasts (HDFs) compared to non-treated old HDFs. Moreover, the ginsenoside 20(S)-Rg3 altered numerous aging factors involved in the maintenance of mitochondrial function. To identify the 20(S)-Rg3-induced rejuvenation in HDFs, we analyzed the label-free quantitative proteome in time-dependent proteomic profiles after the treatment of 20(S)-Rg3 to old HDFs. Nano-UPLC-high definition mass spectrometry (HDMSE) revealed the crosstalk with respect to cellular assembly and organization, free radical scavenging and small molecule biochemistry. Among the identified proteins, we concentrated largely in the expression patterns and associated networks of mitochondrial function. It is suggested that the ginsenoside 20(S)-Rg3 can defense aging-associated mitochondrial events and the ginsenoside 20(S)-Rg3 affects the rejuvenation potency by a disclosed molecular mechanism.

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Integrative medicine in Latin America: Including complementary and traditional practices in formal health systems translational research as development strategy in traditional medicine

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Integrative medicine has begun to be an important means of new resources in the management of disease and especially in the presence of chronic severe and sometimes life-threatening health problems. Currently worldwide different health centers have started to develop programs for its study, research, and use. Currently, in the context of an increased life expectancy, that almost reaches 75 years of age, and growing health-care costs, it has been estimated that more than 400 million people in Latin America use nonconventional, traditional, natural, alternative and/or complementary practices, especially in primary care. Latin America is an important cultural region in the world. Indigenous peoples and cultures have influenced national and sub national cultures within regions, affecting language, music, religion, social customs, food habits, and civic institutions. It may be estimated that around 3 billion dollars are spent yearly on these products in Latin America, making it an economically highly interesting sector in health care. In the context of a relatively small but growing number of high-quality scientific studies, some of the clinical therapeutic models have started to be validated according to criteria of proven efficacy, safety, and cost-effectiveness, adherence to ethical and professional norms, and social acceptability according to guidelines of the World Health Organization (WHO).

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