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Editorial

Traditional Chinese Medicine and Aging Intervention

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Aging is an irreversible dynamic process that affects all humans. From ancient times, humankind has been interested in keeping young. Nowadays, the significance of anti-aging has changed from merely prolonging lifespan to improving healthspan. Traditional Chinese herbal medicine has a long history in Asian countries, which have antiaging properties and could intervene aging-associated disorders. The effectiveness of traditional Chinese medicine (TCM) relies on its large variety of naturally active chemicals, multiple targets for therapy, and diversity of treatment approaches. We have just launched a special issue entitled "Traditional Chinese Medicine and Aging Intervention" which contains ten high-quality review articles of different kinds of herbs that deploys plant species, characteristics, active ingredients, pharmacological effects and mechanisms of action of anti-aging and aging-related disease.

In this special issue, four drugs that are known to invigorate Qi and strengthen Yang according to TCM theory are discussed. *Ginseng* (Renshen) and *Astragalus membranaceus* (Huangqi) are two of the most highly regarded Chinese herbalism for invigorating Qi. Yang *et al.* extensively describe the plant species, characteristics, processing and active part and ingredients of *Ginseng*. Recent phytochemical and pharmacological studies have discovered a variety of potent compounds in all parts of the ginseng plant including ginsenosides, alkaloids, phenolics, phytosterol, carbohydrates, polypeptides, ginseng oils, amino acids, nitrogenous substances, vitamins, minerals, and certain enzymes. Ginsenosides are the major bioactive metabolites. They can increase lifespan, regulate the function of multiple organ systems including cardiovascular, nervous, and cutaneous systems through antioxidant and antiinflammatory properties. A proprietary extract from North American *Ginseng*, CVT-E002, has been shown to extend the lifespan of infant and juvenile mice with leukemia in a dose-dependent manner [1]. The next review by Liu *et al.*, confers the major components of *Astragalus membranaceus* such as saponins, flavonoids, and polysaccharides. The experimental and clinical studies have demonstrated the immunoregulatory, antioxidant, hypolipidemic, antihyperglycemic, hepatoprotective, expectorant, and diuretic effects of *Astragalus membranaceus*. These properties likely contribute to its beneficial effects such as lifespan extension, slowing down of vascular and brain aging, and anti-cancer activity. Among these bioactive ingredients, TA-65, a proprietary extract of the dried root, has been found to be associated with significant anti-aging effects through the lengthening of telomeres in cells [2]. *Ganoderma lucidum* (Lingzhi), a white-rot fungus, considered as an elixir, has been around for thousands of years. Wang *et al.*, describe in detail the components of ethanol, aqueous, mycelia, and water-soluble extracts of *G. lucidum*, including polysaccharides, triterpenes, and peptidoglycans. Ganodermasides, *Ganoderma lucidum* peptide, *Ganoderma* polysaccharide peptide, total *G. lucidum* triterpenes and Ganoderic acid C1 could exert

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