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This occasional section within the journal surveys visions and achievements, often not on the main track of the developing biomedical sciences, but all relating to discoveries and developments of medicinal - both ancient and modern. What they have in common, in one way or another, is providing further background and glances around the edges of the core discipline of pharmacognosy, as it has been and continues to evolve within our times.

Identification of the anticancer mechanism of the traditional Chinese medicine compound kushen injection

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Compound Kushen injection (CKI) is a traditional Chinese medicine (TCM) formulation composed of aqueous *Sophorae flavescentis* Aiton root and *Smilax glabrae* Roxb. rhizome extracts. It has traditionally been used as an anti-inflammatory drug. It also has antineoplastic activity and has been approved in China to treat several cancers. Despite its chemotherapeutic usage, the anticancer mechanism of CKI is yet to be fully elucidated. This may be due to the reductionist approach of many scientific studies, which are reliant on the isolation and screening of individual extract components. Whilst this is a viable approach for many medicines, it is not always effective for complex plant based medicines. TCM generally consists of mixtures of plants/extracts, combined to create a high potency drug. Often, when the individual components are tested in isolation, they have poor efficacy, whereas combinations of components may have additive or synergistic effects. A recent study from an Adelaide University group examined the anticancer mechanism of CKI, 2 making it one of the first studies to report molecular mechanisms for complex mixtures. The study utilised a systems biology approach, which monitors all measurable aspects of the system, rather than focussing on a single bioactivity or morphological change. The research team determined that CKI affected multiple pathways, with cell cycle regulation being particularly important. Furthermore CKI was also reported to induce apoptosis in MCF-7 cells via p53 independent mechanisms.

References

1. University of Adelaide. How Chinese medicine kills cancer cells. Science Daily, 8 September 2016. https://www.sciencedaily.com/releases.2016/09/160908084319.htm
2. Qu Z, Cui J, Harata-Lee Y, Aung TN, et al. Identification of candidate anti-cancer molecular mechanisms of compound kushen injection using functional genomics. Oncotarget. 2014;DOI: 10.18632/oncotarget.11788

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Metadata analysis of plant based medicine clinical trials reveals that some plant therapies have beneficial effects during menopause

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During menopause, the body undergoes a myriad of hormone driven changes which may induce unwanted physical symptoms including vaginal dryness, atrophic vaginitis, lack of energy, stiffness and joint soreness, back pain, heart palpitations, osteoporosis, headache, dizziness, skin irritations, weight gain, night sweats, hot flashes, anxiety, poor memory and concentration, interrupted sleep, irritability and mood swings.[1] There is also evidence of possible links between menopause and atherosclerosis and cardiovascular disease, although these links are contentious. There are currently a variety of treatments for the symptoms of menopause, including hormone replacement therapy (HRT). However, the current therapies are associated with negative consequences to cardiovascular health and may cause breast cancer. Therefore, many women instead choose to use complementary therapies to alleviate the symptoms of menopause. In particular, ingestion of foods with high levels of phytoestrogens (e.g. soy milk/extracts) or the use of herbal remedies such as red clover, black cohosh and several TCM and Ayurveda preparations are particularly widely used. Despite their widespread usage, studies into the efficacy of these medicines are lacking, or are of limited value due to

limited sample size. A recent meta-analysis study by a team from Erasmus University Medical Centre in the Netherlands analysed the effects of plant medicines on hot flashes, night sweats and vaginal dryness in clinical trials from 62 studies, including 6653 patients.[2] Phytoestrogen therapy resulted in a significant decrease in the frequency of hot flashes and alleviated vaginal dryness, but did not significantly affect the occurrence of night sweats. Furthermore, several herbal therapies also decreased the frequency of vasomotor symptoms, although interestingly, the TCM therapies were generally not effective. Notably, there was substantial variation between the studies analysed in terms of rigour and quality of the study. Therefore, whilst these studies are interesting and do indicate that several plant medicines may be useful during menopause; further studies are required to prove their efficacy.

References

1. Ford K, Sowers M, Crutchfield M, Wilson A, Jannausch M. A longitudinal study of the predictors of prevalence and severity of symptoms commonly associated with menopause. Menopause. 2005;12(3):308-17.
2. Franco OH, Chowdhury R, Troup J, et al. Use of plant based therapies and menopausal symptoms. A systematic review and meta-analysis. JAMA. 2016;315(23):2554-63.

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