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Anti-mTOR activity of aqueous extract from roots of *Acanthopanax senticosus*

The mammalian target of rapamycin (mTOR) signaling pathway couples energy and nutrient abundance to the expression of cell growth and division. mTOR is crucially involved in the onset and progression of diabetes, cancer and ageing. The screening of >2,800 natural plant products used for traditional medicine has selected an aqueous extract from roots of *Acanthopanax senticosus* (*A. senticosus*) as a natural product that modulates mTORC1 pathway. The plant extract inhibits mTORC1 activity, but presents low cytotoxicity in HeLa human cancer cells. Treatment of the root extract of *A. senticosus* resulted in the inhibition of mTORC1 activity as measured by the phosphorylation status of p70 S6 kinase (S6K) in HeLa cells and the induction of autophagy as assessed by the conversion of cytoplasmic LC1 into lipidated LCII in HeLa GFP-LC3 cells stably expressing GFP-LC3. The treatment of HeLa cells with this plant extract also induces cell cycle arrest at G2/M phase. A strong therapeutic potential of *A. senticosus* extract that inactivates mTORC1 pathway has been suggested by showing the reduced level of phosphorylated S6K in tissues of 15-week-old diabetic obese db/db mice intraperitoneally injected with *A. senticosus* extract (100 µg/g body weight/day) for a week. Taken together, these results suggest that the aqueous extract of *A. senticosus* is a promising candidate for prevention of cancer, diabetes, and ageing by inhibiting mTOR signaling.

Biography

Kyeong Mee Park has completed her PhD from Korea Advanced Institute of Science & Technology and Medical Doctor from Daejeon University School of Oriental Medicine. She has investigated various pharmacological properties of herbs including ginseng and Chinese medicinal herbs for 13 years and published 24 papers in reputed journals. Also, she is interested in the acupuncture point injection with herbal medicine as a Medical Doctor and recently published 3 books and 6 papers. She is the Director of Inno Oriental Clinic as well as Fuzopuncture Institute.

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