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Regulation of *Mycobacterium tuberculosis*-infected macrophages autophagy by plant-derived natural products with proteasome inhibitory activity

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Tuberculosis (TB) control faces the lack of new drug. *Mycobacterium tuberculosis* (Mtb) is a typical intracellular bacterium. It can inhibit autophagy to survive by intervening in the fusion of phagosome with lysosome. More and more evidences suggest that autophagy is very important in the clearance of intracellular Mtb, and it becomes to be an effective target for treatment of TB. So, how to enhance autophagy in order to kill intracellular bacteria? Eukaryotic cells have two protein degradation systems: ubiquitin-proteasome system and autophagy-lysosome system. Accumulating data suggest that autophagy is activated as a compensatory mechanism upon proteasome activity is impaired. Some plant-derived natural products with proteasome inhibitory activities were found in our previous study, and these products can enhance the activities of autophagy, and the clearance of intracellular Mtb. The status quo is that research and development of anti-TB drugs still focus on the inhibition and killing Mtb itself. According to the characteristic of intracellular bacterium, it may be an effective way to explore how to regulate the host macrophage protein degradation systems to clear intracellular Mtb. The discovery of new drugs on regulating autophagy will open a new window to shorten the TB treatment and relieve the thorny situation of MDR, as well as provides a beneficial attempt for the development of new anti TB drugs.

Biography

Xin Jiang has completed her PhD from Harbin Medical University and Postdoctoral studies from Fudan University and visitor scholar from The Johns Hopkins University. She engaged in natural products research on Mtb for more than ten years. She has published more than 10 papers in reputed journals.

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