

# Mechanistic insights into Old English plants

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*Jasminum humile* inhibits calcineurin. Credit: Geoffrey Kite

Often lacking in natural product drug discovery are ‘mechanistic insights’; that is, insights into the events at the molecular level that are behind any effects that plant compounds have on cells or organisms. With this in mind, Tom Prescott screened 250 Old English plants from the Queen’s Garden at Kew, to search for compounds that inhibit the human enzyme calcineurin. The results have been published in the *Journal of Ethnopharmacology*.

Calcineurin plays an important role in regulating human T-cell activation in the immune response, and inhibition of this process can be beneficial in certain auto-immune diseases.

*Nepeta cataria* and *Teucrium chamaedrys* showed initial promise but the compounds responsible (phenylpropanoid glycosides) were only strongly active against the basal, un-activated form of the enzyme.

*Jasminum humile* was found to be more promising as the ethanol extract inhibited both isolated human calcineurin enzyme and calcineurin-dependent gene expression in yeast cells. This demonstrated that plants do indeed produce compounds that directly inhibit [calcineurin](#).

**More information:** Prescott, T. A. K., et al. (2011). Direct inhibition of calcineurin by caffeoyl phenylethanoid glycosides from *Teucrium chamaedrys* and *Nepeta cataria*. *Journal of Ethnopharmacology* 137: 1306–1310.

Prescott, T. A. K., et al. (2012). Inhibition of human calcineurin and yeast calcineurin-dependent gene expression by *Jasminum humile* leaf and root extracts. *Journal of Ethnopharmacology* 140: 293-297.

Provided by Royal Botanic Gardens, Kew

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