INFLAMMATION

NOSCAPINE ANALOGS AND METHODS RELATED THERETO

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**Introduction:** There is an ongoing need to identify therapeutic methods to treat inflammation, especially those induced by auto-immune diseases. Microtubule disrupting agents are an emerging class of anti-inflammatory agents. Current therapies involving microtubule-targeting drugs cause unwanted side effects. A novel class of Noscapine analogs has been discovered, which function by modulating microtubules without causing the severe side effects of presently used drugs.

**Technology:** Georgia State and Emory University inventors have conceived, designed and synthesized brominated Noscapine analogs, showing potent anti-inflammatory activity in septic and sterile inflammation models. These compounds do not affect cellular viability and function in a dose-dependent and time-dependent manner. One major advantage is that these Noscapinoids modulate microtubule dynamics by increasing the “pause-time” and do not affect the overall microtubule existence. The mechanism possibly involves inhibition of TNF-a, IL-8 and nitric oxide release.

**Applications:**

- Treatment and prevention of inflammatory diseases, such as Alzheimer’s, arthritis, asthma, atherosclerosis, Crohn’s disease, colitis, dermatitis, Hepatitis, irritable bowel syndrome and inflammatory bowel disease, among others
- Treatment and prevention of abnormal cellular proliferation, such as eczema, psoriasis, atherosclerosis, arthritis, osteoporosis, leukemia, malignant tumors, etc.

**Advantages:**

- Overcomes the microtubule over-polymerization and de-polymerization effects caused by taxanes and Vincas, preventing side effects like GI toxicity, neuropathies and immunosuppression
- Subtle attenuation of microtubule dynamics. Do not alter monomer/polymer ratio leading to non-toxicity
- Displays anti-inflammatory activity without affecting cell viability
- Induce autophagy thereby dampening inflammation

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