

The Janus Corner

Looking Back



Looking Forward

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 medicinals – 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.

Camel milk components inhibits the growth of colon cancer cells

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Lactoferrin is a glycoprotein which is widely represented in secretory fluids including saliva and tears and is especially high in milk. It has a high affinity for iron and may aid cell proliferation by transporting iron into cells. Lactoferrin has also been shown to have a variety of biological activities, including providing antibacterial activity in infants.^[1] It interacts with polysaccharides ligands on cell surfaces and may activate cell signalling pathways such as the Fas pathway, resulting in the inhibition of tumour growth via apoptosis.^[2] Lactoferrin can also penetrate cells and function as a transcription factor, activating the transcription of specific DNA sequences.^[3] Thus lactoferrin has potential in tumour treatment by blocking tumour cell proliferation. A recent study published in Food Chemistry examined the ability of camel milk lactoferrin to block cancer cell growth.^[4] This study has reported that high concentrations (3–5 mg/ml) of camel milk lactoferrin inhibits the proliferation of HCT-116 colon cancer cells by as much as 56 %. In contrast, no significant inhibition of cell proliferation was noted at

lower concentrations (≤ 1 mg/ml). Whilst this study did not determine the antiproliferative mechanisms, it was shown that camel milk lactoferrin exerts significant antioxidant activity in NO• scavenging, DPPH assays, FRAP and total antioxidant equivalents assays. Furthermore, lactoferrin also inhibited DNA damage. Cellular redox state and oxidative stress have been linked to cell death via apoptosis, DNA damage and a wide variety of chronic diseases,^[5,6] providing further therapeutic potential for camel milk lactoferrin.

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