Rezende BM, Bernardes PTT, Resende, CB, Arantes RME, Souza DG, Braga FC, Castor MGM, Teixeira MM and Pinho V (2013). Lithothamnion muelleri Controls Inflammatory Responses, Target Organ Injury and Lethality Associated with Graft-versus-Host Disease in Mice. *Marine Drugs, 11(7):2595-2615.*

Lithothamnion muelleri (Hapalidiaceae) is a marine red alga, which is a member of a group of algae with anti-inflammatory, antitumor, and immunomodulatory properties. The present study evaluated the effects of treatment with *Lithothamnion muelleri* extract (LM) in a model of acute graft-*versus*-host disease (GVHD), using a model of adoptive splenocyte transfer from C57BL/6 donors into B6D2F1 recipient mice. Mice treated with LM showed reduced clinical signs of disease and mortality when compared with untreated mice. LM-treated mice had reduced tissue injury, less bacterial translocation, and decreased levels of proinflammatory cytokines and chemokines (interferon-γ (IFN-γ), tumor necrosis factor-α (TNF-α), chemokine (C-C motif) ligand 2 (CCL2), chemokine (C-C motif) ligand 3 (CCL3) and chemokine (C-C motif) ligand 5 (CCL5)). The polysaccharide-rich fraction derived from LM could inhibit leukocyte rolling and adhesion in intestinal venules, as assessed by intravital microscopy. LM treatment did not impair the beneficial effects of graft-*versus*-leukaemia (GVL). Altogether, our studies suggest that treatment with *Lithothamnion muelleri* has a potential therapeutic application in GVHD treatment.

Keywords: algae, chemokine, cytokine, GVHD, inflammation