## DMICSGroup <u>conferences</u> Accelerating Scientific Discovery

September 04-05, 2013 Holiday Inn Orlando International Airport, Orlando, FL, USA

## Treatment with inactivated bacterial metalloprotease arazyme induces a protective immune response on primary and metastatic murine mammary adenocarcinoma

Amanda Campelo Lima de Melo Federal University of São Paulo (UNIFESP-EPM), Brazil

A vailable cancer therapies are highly toxic with severe side effects, and the discovery of new therapeutic strategies is encouraged. There has been a long-standing interest in the identification of plant- and bacterial-derived products for developing anticancer agents. A multienzyme mixture of exogenous proteinases (trypsin, chymotrypsin and papain), as well as bromelain (mixture of proteolytic enzymes from *Ananas comosus*, pineapple) and fastuosain (25 kDa cysteine protease purified from the fruits of *Bromelia fastuosa*) inhibited tumor growth in preclinical models. The antitumor activities of bacterial-derived proteases are less recognized. Arazyme is a metalloprotease isolated from *Serratia proteamaculans*, and studies in our laboratory showed that arazyme reduced the number of metastatic lung nodules in B16F10-Nex2 murine melanoma model, but did not affect primary tumor development. Arazyme cleaved CD44 in melanoma cells surface, induced melanoma MMP-8 cross-reacting antibodies and was a potent immunomodulator, activating antigen-presenting cells independently of its proteolytic activity. We evaluated the immunomodulatory effect of arazyme on 4T1 breast adenocarcinoma preclinical model. Female Balb/c mice were challenged with 4T1 cells and treated intraperitoneally with inactive arazyme. Inactived-arazyme treated group showed a delayed primary tumor growth, reduction in the number of metastatic pulmonary nodules and increased survival compared to untreated group. These results suggest that arazyme has a potent immunomodulatory effect on primary and metastatic 4T1 preclinical model.

## Biography

Amanda Campelo Lima de Melo graduated in Biomedical Sciences at Federal University of Piaui in 2011. She is currently attending a Master of Science Program in Microbiology, Immunology and Parasitology at the Federal University of São Paulo, Brazil. She works with experimental oncology with emphasis on cancer immunotherapy.

mandinha\_cl@hotmail.com