

Immunogenicity and Modulatory Effect of the Lectins from *Artocarpus heterophyllus* (Jackfruit) Seeds, Artocarpin and Jacalin

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SUMMARY. The immune response of mice subcutaneously immunized with two lectins from *Artocarpus heterophyllus* seeds, artocarpin and jacalin, and their possible modulatory effect on antibody synthesis of mice immunized with an unrelated antigen, were studied. Both lectins induced specific synthesis of antibodies, irrespective of their immunizing dose. Concerning the modulatory effect on the synthesis of anti-ovalbumin total immunoglobulins, artocarpin stimulated the synthesis of anti-ovalbumin antibodies irrespective of its dose and jacalin had a tendency to stimulate such antibody synthesis according to its dose. Discrimination of anti-ovalbumin synthesis of IgG1 and IgE showed that the artocarpin modulated IgG1 whilst jacalin modulated IgE.

RESUMEN. "Inmunogenicidad y efecto modulador de dos lectinas de semillas de *Artocarpus heterophyllus*, artocarpina y jacalina". Se estudió la respuesta inmune de ratones inmunizados subcutáneamente con dos lectinas de semillas de *Artocarpus heterophyllus*, artocarpina y jacalina, y sus posibles efectos moduladores en la síntesis de anticuerpos de ratones inmunizados con un antígeno no relacionado estructuralmente. Las dos lectinas inducen la síntesis específica de anticuerpos, independientemente de sus dosis inmunizantes. Con respecto al efecto modulador sobre la síntesis de inmunoglobulinas totales antiovalbúmina, la artocarpina estimuló la síntesis de anticuerpos antiovalbúmina independientemente de su dosis y la jacalina tuvo tendencia a estimular la síntesis del anticuerpo según su dosis. La discriminación de las síntesis de IgG1 y IgE anti-ovalbumina demostró que la artocarpina modula la IgG1, en tanto que la jacalina modula la IgE.

INTRODUCTION

Jacalin and, more recently, artocarpin, are the main lectins from *Artocarpus heterophyllus*, which are used as tools in immunological studies^{1,2}. Jacalin is a D-galactose-specific lectin, known for its reactivity towards human IgA and IgD^{3,4}. In addition, it has been described to interact with CD4 molecules⁵ and recently it was shown that jacalin induces interleukin-6 secretion, using cells from monocyte/macrophage lineage that express the CD4 molecule⁶. Artocarpin, a term first used for the α -D-galactosyl lectin from *Artocarpus lakoocha* seeds⁷, has also recently been applied to another lectin found in *Artocarpus integrifolia* seeds with carbohydrate specificity towards D-mannose. This lectin

was characterized as a T cell-dependent B cell polyclonal activator².

Despite their use in immunological studies, jacalin and artocarpin have rarely been used for *in vivo* studies related to antibody synthesis. In the present work we have evaluated the immune response induced by jacalin and artocarpin and compared the immunomodulatory effects exerted by different doses of these lectins on the antibody synthesis induced by a non related antigen, ovalbumin (OVA). Our data showed a modulatory effect of artocarpin and jacalin on anti-ovalbumin total immunoglobulin synthesis and a different modulation by these lectins on anti-Ova IgG1 and IgE isotypes.

KEY WORDS: Artocarpin, IgE, IgG1, Immunomodulation, Jacalin, Lectin.

PALABRAS CLAVE: Artocarpina, IgE, IgG1, Inmunomodulación, Jacalina, Lectina.

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