



## **Expression, Purification, and Characterization of a CHO-derived Mouse Prolactin Receptor Antagonist S177D-mPRL Produced in Serum-free Medium**

Suzuki, M.F.; Arthuso, F.S.; Oliveira, J.E.; Capone, M.V.; Oliveira, N.A.J.; Ribela, M.T.C.P.; Bartolini, P.; Soares, C.R.J.

Centro de Biotecnologia, Instituto de Pesquisas Energéticas e Nucleares, IPEN –  
CNEN/SP, São Paulo, Brazil

Prolactin is a hormone included in the cytokine super family and involved in innumerable biological processes, mainly related to lactation control and reproduction. Due to its endocrine, autocrine and paracrine action, it is frequently related to development of human pathologies, such as carcinomas and autoimmune diseases. An antagonist of human prolactin (S179D-hPRL) has been used to study possible therapeutic application in breast and prostate cancer and in systemic lupus erythematosus (SLE). Considering the difference of ~40% between the amino acid sequences of mouse PRL (mPRL) in relation to human PRL (hPRL), the use of the homologous hormone (mPRL) and antagonist (S177D-mPRL), for *in vivo* bioassays and related studies in mice, is recommended. An expression vector (p658-S177D-mPRL) was constructed and dhfr<sup>-</sup> CHO cells were transfected and cultured in selection medium. The best clone obtained, cultured in serum-free medium (CHO-S-SFM II), provided an expression level of ~1µg/ml/day. After purification by two chromatographic steps based on Q-Sepharose Fast Flow and high-performance size-exclusion chromatography (HPSEC), practically pure S177D-mPRL was obtained. For the first time an antagonist of mPRL was thus synthesized and characterized, also concerning its antagonistic properties, and it will be extremely useful for a valid interpretation of data obtained in animal models as, for example, the understanding of prolactin role in the evolution of autoimmune disease in F1[NZB/NZW] mice with spontaneous SLE.

Keywords: CHO cell, mouse prolactin, recombinant hormone, receptor antagonist.  
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