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**Changes in Serum Insulin-Like Growth Factor Binding Protein-2 (IGFBP-2) and Prostate Cancer Recurrence.** Eleftherios P Diamandis,<sup>1</sup> Michael R Nizar,<sup>2</sup> Runhua Shi,<sup>3</sup> Hans J Berkel,<sup>3</sup> Robert Nam,<sup>4</sup> John Trachtenberg,<sup>5</sup> Herbert Yu,<sup>3</sup> <sup>1</sup>Lab Med/Pathology, Mount Sinai Hospital, Toronto, ON, Canada; <sup>2</sup>Diagnostic Systems Laboratories, Inc., Webster, TX; <sup>3</sup>Medicine, LSU Health Sciences Center, Shreveport, LA; <sup>4</sup>Clinical Epidemiology, University of Toronto; <sup>5</sup>Urology, The Toronto Hospital, Toronto, ON, Canada

IGFs are potent mitogens for prostate cancer cells. The mitogenic action of IGFs are regulated by IGFBPs. Previous studies have shown that serum IGFBP-2 levels are increased and IGFBP-3 levels are decreased in prostate cancer patients compared to individuals without the disease, suggesting that these binding proteins may play a role in the progression of prostate cancer. To examine the associations between IGFBP-2 and -3 and risk of prostate cancer recurrence, we compared changes in levels of these binding proteins in sequentially collected serum samples from prostate cancer patients with and without recurrence. From a cohort of 200 prostate cancer patients who had been followed for disease recurrence for 5 years, we selected 38 who developed recurrent disease as cases and 40 patients who had no biochemical (PSA) or clinical sign of recurrence as controls. Four sequential post-operative serum samples were collected from 72 patients. Six cases had 3 sequential samples available for the study. Median collection times for these samples were 18 months post-operation for the first samples, 32 months for the second, 42 months for the third, and 56 months for the fourth. Serum levels of IGFBP-2, -3 and IGF-I were determined using commercial RIA (IGFBP-2) and ELISA kits (DSL, Webster, TX). The results of the study showed that overall IGFBP-2 levels were significantly lower in the cases than in controls ( $p < 0.001$ ). In the sequential samples, levels of this binding protein did not change in the cases ( $p = 0.295$ ), but increased in the controls ( $p = 0.002$ ). There was about an 18% increase between the first and last samples. Levels of IGF-I and IGFBP-3 were not significantly different between the two groups ( $p = 0.668$  and  $0.097$ , respectively). Moreover, there were also no increasing or decreasing trends for IGF-I and IGFBP-3 in either cases ( $p = 0.858$  and  $0.171$ , respectively) or in controls ( $p = 0.677$  and  $0.264$ , respectively). These findings suggest that IGFBP-2 may be decreased in aggressive prostate cancer and that IGF-I and IGFBP-3 may have little impact on the disease recurrence.