

#3467 Development of an ultrasensitive immunoassay for human glandular kallikrein (hK2) with no cross reactivity with prostate specific antigen (PSA). Magdara, A., Black, M.H., Obiezu, C.V., Melegos D.N., and Diamandis, E.P., *Department of Pathology and Laboratory Medicine, Mount Sinai Hospital, 600 University Avenue, Toronto, Ontario, Canada, M5G 1X5.*

We describe a new method for the determination of human glandular kallikrein (hK2) in biological fluids which has minimal (0.2%) cross-reactivity with the highly homologous protein PSA. Combined with a previously described method for PSA which has no cross-reactivity with hK2, this method can be used to measure the relative proportions of hK2 and PSA in biological fluids. Our method is about 20 times more sensitive than any other reported assay for hK2 and allows the generation of new clinical information. This assay has excellent sensitivity (6 ng/L) and precision (less than 10%). Recovery studies indicated that hK2 binds to serum protease inhibitors. We found that almost all male sera from normal individuals have measurable hK2 concentration with a median of 73 ng/L. Almost all female sera have undetectable level of hK2. Serum hK2 and PSA levels in males correlate well ($r = 0.83$) but hK2 is present at approximately 10 times lower concentration than PSA. The PSA/hK2 ratio in male sera varies widely from 2-186. In seminal plasma, this ratio is 160-1,000. More than 95% of immunoreactive hK2 in serum is in the free form (~30 kDa) but we also detected traces of hK2- α 2-macroglobulin and hK2- α 1-antichymotrypsin complexes. hK2 can be used to monitor post-radical prostatectomy patients similarly to PSA. Current studies indicate that the measurement of PSA and hK2 in combination has greater clinical utility than the measurement of PSA alone.