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In the fall of 1962, I began doing preliminary experiments—I obtained thyroxine and its analogues and then attempted to determine their binding to human corticosteroid-binding globulin (TBG)—existed for thyroxine.

The initial experiments went well, with the setting-up of 12 small Sephadex columns which successfully separated the bound and free hormone. However, the standard curve was unsatisfactory, not behaving at all as I had expected, and quite useless for assay purposes. One day in January 1963, feeling ill with a cold, nauseated due to my pregnancy, and discouraged with my results, I decided to go home to bed. On my way out, I picked up Antoniades’s Hormones in Human Plasma to read. Between trips to the bathroom, I made my way through the chapter on thyroid hormones by Ingbar and Freinkel and suddenly realized what was wrong. I had neglected to consider the effects of prealbumin, another, but weaker, T4 binder in blood. My reading that afternoon also provided the remedy—simply alter the buffer from phosphate to barbital. The following day, I obtained an excellent standard curve and from then on all went smoothly (with both method and pregnancy). Ably assisted by technician Sorel Cohen, we rapidly accumulated data and in March we were able to submit an abstract; in May, a manuscript. In June, I presented our findings in London, Ontario. Three weeks later, two professors from Ottawa visited the laboratory to learn the technique and invited me to lunch (dining out is one of Montreal’s delights). Declining reluctantly, I instead made my way over to the maternity hospital and reported back to the lab a little later that it was a girl. During that summer, we revised the paper, which was accepted in October.

This paper owes its popularity to describing the first validated method for the specific determination of thyroxine, demonstrating a rapid means of diagnosing with considerable accuracy the two common diseases, hypo- and hyperthyroidism.

Currently, serum thyroxine is often determined by radioimmunoassay, a technique which is similar in principle but replaces TBG with an antibody to thyroxine.6

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