

Citation Classics

Boucher R, Veyrat R, de Champlain J & Genest J. New procedures for measurement of human plasma angiotensin and renin activity levels. *Can. Med. A.J.* **90**:194-201, 1964.

The authors describe an improved procedure for angiotensin isolation and determination and a new method for the measurement of plasma renin activity. [The SCJ® indicates that this paper was cited a total of 667 times in the period 1964-1976.]

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"It is difficult to foresee the importance that a publication will have. I guess no one does publish with the premeditated idea his article will one day be one of the most cited articles published! This is extremely flattering and a great honor. It is also a reflection of the important interest in the field of experimental and clinical hypertension and the great need for an accurate and precise method for measuring plasma renin.

"My work received impetus when Dr. Jacques Genest, realizing that the disturbances found in aldosterone regulation could not explain by themselves the basic mechanisms of essential hypertension, was studying the relationships to those disturbances of the renal pressor system. When he demonstrated in 1959-60 that angiotensin was a major factor controlling aldosterone, he asked me to devise a method for measurement of plasma angiotensin and of renin. We had many discussions about the physiological and

clinical applications of such a method. The key element in the method was the finding that the Dowex resin [50W-X2(NH₄⁺)] not only protected the formed angiotensin from the proteolytic enzymes, but also did not modify the kinetics of the reninsubstrate reaction and permitted the purification of the angiotensin. This work was presented at the International Symposium on "Angiotensin-Aldosterone-Sodium and Hypertension" held at the Chantecler Hotel in Ste-Adèle, Canada, in October 1963. It was organized by our multidisciplinary hypertension research group of the Clinical Research Institute of Montreal. Dr. Robert Veyrat, a Swiss research fellow from Geneva, who unfortunately died prematurely in March 1973, and Dr. Jacques de Champlain, a fellow of the Medical Research Council of Canada and now Professor of Physiology at the University of Montreal, contributed in many ways.

"As it turned out, the method for measurement of plasma angiotensin was not used extensively because of the large amounts of blood required to perform the assay. But I guess that the method for plasma renin activity determination, which was subsequently used by almost every other worker in the field and modified by a number in minor ways, resulted in crucial contributions to our knowledge of the physiopathology of the reninangiotensin system, and its importance in the diagnosis of renovascular hypertension and primary aldosteronism and in the regulation of aldosterone secretion and of sodium.

"We have always shared the view that good methods are a major factor in scientific progress."