This paper described a sensitive and specific radiometric enzymatic assay for catecholamines in brain extracts. The method was applied to fetal rat brain and demonstrated the early development of functioning catecholaminergic neurons. The assay's remarkable sensitivity resulted in its application to brain extracts. The method was applicable to brain extracts and was modified so it could be used on fetal rat brain. This study demonstrated that both norepinephrine and dopamine were detectable in the fetal rat brain as early as 15 days of gestation, when the brain weighed less than two percent of that of the adult. Furthermore, pharmacologic manipulations revealed that the catecholamines in the fetal rat brain behaved in a fashion similar to those in adult brain, thereby indicating that the neurotransmitters were localized in a dynamic, functionally relevant pool. This study provided the first quantitative evidence of the early formation and functional activity of catecholaminergic neurons in the developing brain, a conclusion that was supported by subsequent histochemical and immunocytochemical studies.

"It is noteworthy that this article was selected as a Citation Classic this year when Julius has formally retired from the National Institute of Mental Health. This study by two young postdoctoral fellows directly issued from the conceptual approaches and the ambience of collaborative interactions that characterized Julie's laboratory."