Vascular prostaglandin synthesis: the early days

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Abstract:
Prostacyclin (PGI₂) and thromboxane (TxA₂), labile cyclooxygenase (COX) products via PGH₂, were identified in biological fluids by the ingenious application of the principle of parallel pharmacological assays developed by John Vane. Either organ perfusates or circulating blood superfuse bioassay tissues arranged in a cascade. Tissues were selected based on specificity of responses to targeted eicosanoids. Additionally, PGI₂ inhibited platelet aggregation, a finding that led to discovery of its critical anti-thrombotic activity at the blood-endothelial interface. The biological activities of PGI₂ and TxA₂ were the fingerprints for tracking their isolation and ultimate chemical identification. These studies were responsible for opening the modern era of vascular biology that has facilitated the development of a rational approach to the treatment of diabetic and hypertensive complications involving the arterial circulation.

Key words:
cascade superfusion bioassay, endothelium, platelet aggregation, prostacyclin