

References

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Detection of small amounts of prostaglandin (PG)-like material and rabbit aorta contracting substance (RCS) released into the blood of the rat

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The cascade superfusion technique (Finkleman, 1930; Vane, 1964) is widely used for the detection and bioassay of biologically active substances. The method has also been employed to detect the release of vasoactive substances into the circulation of anaesthetized animals (Vane, 1964, 1969). However, because of the relatively high flow-rates required, the blood-bathed organ technique is very difficult to use with small animals.

Recently, Ferreira & de Souza Costa (1976) have described a laminar flow superfusion technique which can be used to detect very small amounts of biologically active material with very slow rates of superfusion and this latter apparatus has now been adapted for the blood-bathed organ technique in rats, as suggested by Ferreira & de Souza Costa (1976).

The apparatus is shown in Figure 1. Blood is removed at 0.1 ml/min through a polyethylene cannula in a carotid artery and pumped directly over a rabbit aorta and rat stomach strip, set up in a way to be described elsewhere. Krebs (gassed with 95% O_2 + 5% CO_2) containing antagonists (Gilmore, Vane & Wyllie, 1968), is simultaneously passed over the tissues. This Krebs flow is initially set at 0.2 ml/min, then reduced to 0.1 ml/min as the blood reaches the tissues, in order to maintain a constant flow over the tissues. Standard solutions are injected directly over the tissues and plasma volume is maintained by i.v. injection of 6% dextran/saline until the animal dies (up to 1 hour).

Using this technique we have detected the release of

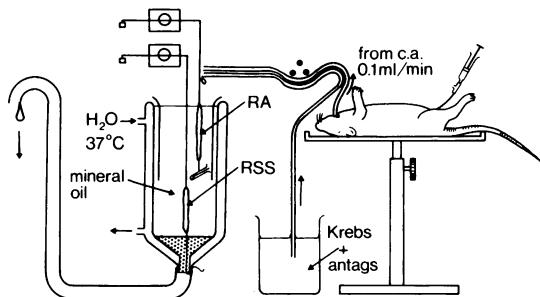


Figure 1 Blood-bathed organ technique in the rat. All tubing is kept as short as possible to reduce temperature changes and the rat is moved as close as possible to the organ bath, using an adjustable operating table. RA=rabbit aorta, RSS=rat stomach strip, c.a.=carotid artery.

RCS and PG-like material into the blood, following i.v. injection (into femoral or tail vein) of 0.5 mg/kg of pig pancreatic phospholipase A_2 . With the use of appropriate tissues, it should also be possible to detect the release of other biologically active substances into the circulation of the rat.

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