

PROCEEDINGS OF THE PHYSIOLOGICAL SOCIETY OF NEW ZEALAND

IN VITRO BIOASSAY TECHNIQUES - QUESTIONABLE VALIDITY USING VERTICAL BATH TECHNOLOGY AND PHOSPHATE BUFFERED SOLUTIONS

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The ability of a physiological solution to Sustain the overall metabolic function of isolated tissue/organ preparations, over an experimental period, should be a basic requisite for any pharmacological bioassay test regime, if validation of the observed physiological responsiveness to planned or random drug dose regimes is to be meaningful. The formulation of Res-Del® RS-I Mammalian solution, in tandem with the advanced perfusion technology provided by the horizontally, aligned Res-Del® Perfusion Bath, has been shown to maintain the physiological viability and pharmacological responsiveness of isolated mammalian tissues/organs at normothermic temperatures and for up to 12 days when stored in RS-I solution at 8-10 °C (1). The results of experiments using the Res-Del® technology seriously question the validity of previous pharmacological bioassay investigations conducted in vertical organ bath systems and/or using phosphate buffered solutions, which have been reported over the last 40 years to inhibit: glycolysis (1,2), oxidative phosphorylation, creatine kinase (3) and the enzymes involved in oxygen free radical scavenging (4).

- (1) Rees D (1989) March: Biomesstechnik-Verlag March GmbCH. **5**: pp 85-94;123-132.
- (2) Berman DA & Saunders FR (1955) Circ Res **III**: 559-563.
- (3) Hall N & DeLuca M (1986) Adv Exp Med Biol **194**: 71-82.
- (4) De Frietas JM & Valentine S (1984) Biochem **23**: 2079.

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