

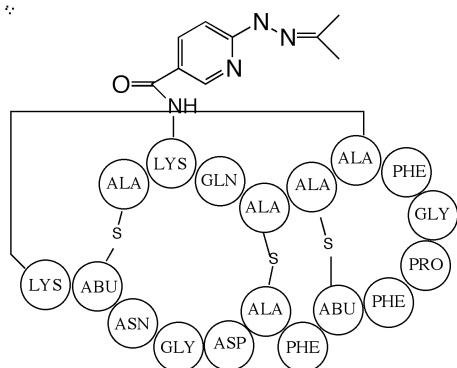
# Kit for the Preparation of <sup>99m</sup>Tc-Duramycin

Cat # D-1007

**Product Description:** This cold kit formulation is optimized for the preparation of the small peptide radiopharmaceutical, <sup>99m</sup>Tc-duramycin. The active ingredient in the kit is HYNIC-duramycin (Figure 1) in which the HYNIC chelator is attached to amino groups of duramycin. The conjugate contains 1 HYNIC molecule per duramycin molecule. Duramycin binds phosphatidylethanolamine (PE) at a 1:1 ratio with high affinity ( $K_d$  of 4-6 nM) and exclusive specificity.

**Applications:** <sup>99m</sup>Tc-duramycin has been shown to be useful for *in vivo* SPECT imaging in animal models of sites where PE is exposed such as during apoptosis [Zhao, 2008]. In the cardiovascular area, <sup>99m</sup>Tc-duramycin has been shown to be taken up in experimental models of myocardial infarction (MI) [Wang, 2015; Liu, 2016; Kawai, 2017], areas of atherosclerotic plaque [Liu, 2016; Hu, 2017; Kawai, 2017] and for imaging cardiotoxicity injury [Nakahara, 2017]. In the oncology area, it has been shown to allow early prediction of tumor response to therapy [Elvas, 2015 & 2016; Luo, 2016] therefore may be used as a screening tool for *in vivo* evaluation of new cancer drugs. It has also been used for whole body imaging to detect tissue injury from ionizing irradiation [Johnson, 2013] and may be useful to detect organ toxicity from known and experimental drug treatments [Kawai, 2017].

Fig 1: Chemical structure of HYNIC-duramycin



**Product Formulation Procedure:** For radiolabeling, ~ 30 mCi of <sup>99m</sup>Tc-pertechnetate in 0.5mL saline is added to the vial and excess vial pressure vented. The vial is then heated at 80°C in a lead-lined heating block for 30 mins and the radiolabel incorporation and radiochemical purity is assessed either by ITLC or radio-HPLC analysis [Elvas, 2015; Luo, 2016; Zhao, 2012]. Typical radiopurity of <sup>99m</sup>Tc-duramycin is >95%. Typical doses per rat and mouse are ~3-5 mCi and 1 mCi respectively.

**Blood Clearance Kinetics:** The half-life for the fast clearance  $\alpha$ -phase is ~3.6-4.1 mins whereas that of slow clearance  $\beta$ -phase is ~171-180 mins [Wang, 2015; Luo, 2016]

Catalog #	Product Name	Size
D-1007	HYNIC-duramycin- Kit	15 ug (~4-5 rats doses)

## References:

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