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A Rapid Biodosimetric Technique at the Human Glycophorin-A Locus

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ABSTRACT For risk assessment, it is necessary to evaluate the dose of human exposure to a mutagen. Environmental genotoxic factors such as Ionizing Radiations induce dose-dependent somatic mutations. Recent studies support the somatic-mutation theory of carcinogenesis. Mutations at the Glycophorin – A (GPA) loci have been studied for establishment of mutagen exposure particularly at a population level and also to estimate the cumulative dose responses. GPA assay provides lifetime biological dosimetry for exposure to radiation as the mutations are accumulated in the long lived hematopoietic stem cells of the bone marrow. Here we present a novel technique, the RS-1 Assay in quantifying the GPA mutations and its role in biodosimetry and risk assessment.

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