EXHIBIT 32

!! ┤ : │ 4 ┘

Title: Review of Genotoxicity of Glyphosate and Glyphosate Based Formulations

Authors: Larry D. Kiera
David A. Saltmirasb

Affiliations: a Private Consultant, [redacted]
b Monsanto Company, St. Louis, MO

Corresponding Author: David A. Saltmirasb

Word Counts:
Abstract: 200199
Text: 13,411
Tables: Table 1—591
Table 2—1,982
Table 3—895

Key Words: glyphosate, Roundup, genotoxicity

Abbreviations: AMPA, aminomethylphosphonic acid ; CB MN, cytokinesis block micronucleus; GBF, glyphosate based formulation; SCE, sister chromatid exchange; SCGE, single cell gel electrophoresis (comet); NEC, normochromatic erythrocyte; OECD, Organization for Economic Cooperation and Development; i.p., intraperitoneal; PCE, polychromatic erythrocyte; POEA, polyethoxylated tallow amine, tallowamine ethoxylate.

Abstract
An earlier review of the toxicity of glyphosate and the original Roundup"! formulation glyphosate based formulations (GBFs) concluded that t neither glyphosate and nor the formulationRoundup GBFs do not pose a risk for the production of heritable/somatic mutations in humans (Williams et al., 2000). This review of subsequent glyphosate genotoxicity publications includes analysis of study methodology and incorporation of all the findings into a weight of evidence for genotoxicity. Two publications provided limited additional support for the conclusion that glyphosate and glyphosate based formulations (GBFs) are not active in the gene mutation assay category. The weight of evidence from in vitro and in vivo mammalian chromosome effects studies supports the earlier conclusion that glyphosate and │ GBFs are predominantly negative for this endpoint category. Exceptions are mostly for unusual test systems but there are also some unexplained discordant positive results in mammalian systems. Several reports of positive results for the SCE and comet DNA damage endpoints have been published for glyphosate and GBFs. The data suggest that these DNA damage effects are likely due to cytotoxic effects rather than DNA reactivity. The This weight of evidence conclusion from this review is concludes that there is no significant in vivo genotoxicity and mutagenicity potential of glyphosate or GBFs that would be expected under normal exposure scenarios.