UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

8/1/89

Subject: Acetochlor - Quantitative Risk Assessment, Two Year
Chronic/Oncogenicity Sprague-Dawley Rat Study

caswell no. 3B

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Summary

The unit risk, Q_1^*, of acetochlor is 10^{-2} (mg/kg/day)$^{-1}$ in
human equivalents. This estimate of Q_1^* is based upon papillary
adenomas (nasal turbinates) in both male and female Sprague-
Dawley rats fed 0, 40, 200, and 1000 ppm.

Significant differential mortality with increasing doses of
acetochlor did not occur in either sex.

Both sexes had a significant increasing trend in papillary adenomas
(nasal turbinates) with dose increments of acetochlor and both sexes
had a significant difference in the pair-wise comparison of controls
and the highest dose group. See the memorandum on Acetochlor -
Qualitative Risk Assessment from a Rat 2-Year Chronic/Oncogenicity
Study, C.J. Nelson 9/7/88 for details.

1

Background

The Peer Review Committee meeting on acetochlor on 2/8/89 concluded that the chemical compound should be classified as a [B$_2$] carcinogen. In addition they recommended that the unit risk, $Q_1{}^*$, should be estimated from both male and female rat nasal turbinate papillary adenoma tumor rates.

Dose-Response Analysis

As a result of the Peer Review Committee's recommendation of the use of rat papillary adenomas for the estimation of $Q_1{}^*$ and since there was no significant dose related mortality in either sex the calculation of the unit risk was made by the use of the Global86, Multi-Stage Model computer program of K. Crump. The unit risk calculated from the rat data in ppm doses was converted to rat mg/kg/day by the use of Lehman's Tables and then to human equivalents by the use of interspecies surface area adjustments as recommended by EPA Cancer Guidelines (1986).

The resultant estimate of $Q_1{}^*$ is as follows:

Tumor - nasal turbinate papillary adenomas	Rat, $Q_1{}^*$ (mg/kg/day)$^{-1}$	In Human Equivalents
male	2.04×10^{-3}	1.08×10^{-2}
female	1.73×10^{-3}	9.20×10^{-3}

It is to be noted that $Q_1{}^*$ is an estimate of the upper (95%) bound on risk and that (as stated in the EPA Guidelines) the "true value of the risk is unknown and that the lower limit of the risk may be as low as zero".

2

References

Howe, R.B., Crump, K.S. and Van Landingham, C. (1986)
    A Computer Program to Extrapolate Quantal Animal
    Toxicity Data to Low Doses (unpublished report), 25 pgs.