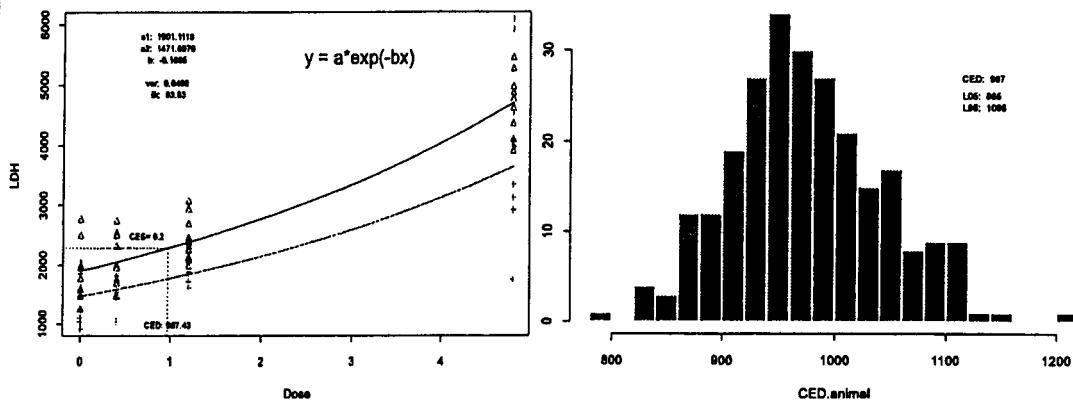


# Regression curves



**CES = 20% for LDH-increase**

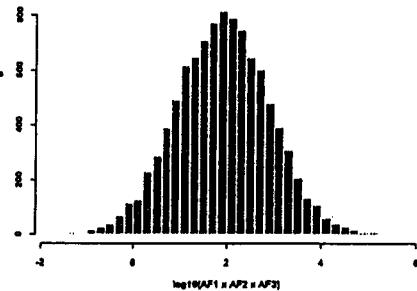
**rlvmm**

No difference in sensitivity between males (triangles) and females (plusses), so the data can be pooled for the derivation of the CED.

A problem is the choice of the CES. Is 20% critical?

# Monte Carlo for AFtot for EXA

Assessment factor	Distribution	Geometric mean	Geometric standard deviation
AF <sub>1</sub> : interspecies, kinetics interspecies, residual	discrete value	4	-
	lognormal	1	6
AF <sub>2</sub> : intraspecies	discrete value	10	-
AF <sub>3</sub> : duration of exposure semi-chronic to chronic	lognormal	2	4



GM = 80

GSD = 9.6

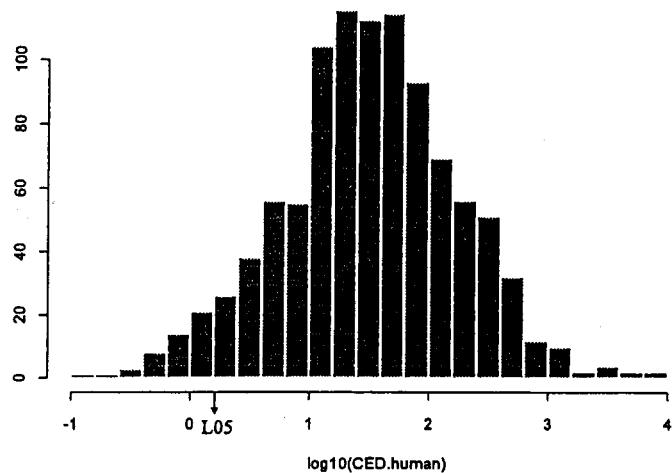
P87 = 1000

P95 = 3300



This slide shows the probabilistic combination of (distributions of) assessment factors

## CED-human for EXA



$P5 = 0.25 \text{ mg} \cdot \text{kg}^{-1} \text{bw} \cdot \text{d}^{-1}$

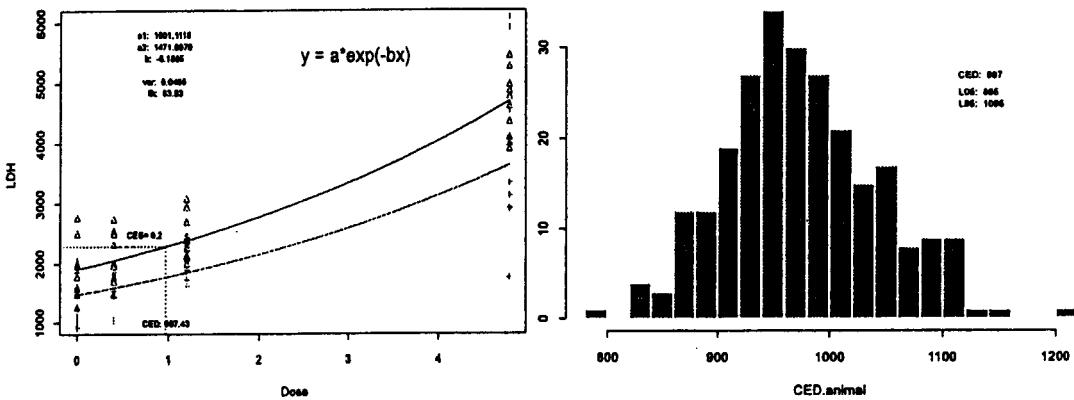
AFtot relative to NOAEL is 1600

**nlvrm**

# Conclusions and recommendations

- Long-term goal: probabilistic RA?
- Stepwise-implementation
  - Investigate further distributions of AFs
  - Investigate further probabilistic benchmark procedure
  - Investigate further probabilistic exposure assessment
  - Communication with risk managers
- Further research:
  - Interspecies extrapolation need further analysis of variability in toxicokinetics (scaling) and pharmacodynamics
  - Intraspecies: research into human variability
  - Refinement of extrapolation for study period
  - CES-derivation

## Regression curves



**CES = 20% for LDH-increase**

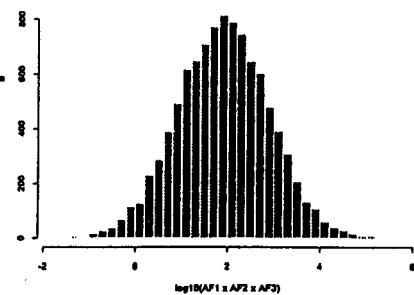


No difference in sensitivity between males (triangles) and females (plusesses), so the data can be pooled for the derivation of the CED.

A problem is the choice of the CES. Is 20% critical?

# Monte Carlo for AF<sub>tot</sub> for EXA

Assessment factor	Distribution	Geometric mean	Geometric standard deviation
AF <sub>1</sub> : interspecies, kinetics	discrete value	4	-
interspecies, residual	lognormal	1	6
AF <sub>2</sub> : intraspecies	discrete value	10	-
AF <sub>3</sub> : duration of exposure semi-chronic to chronic	lognormal	2	4



GM = 80

GSD = 9.6

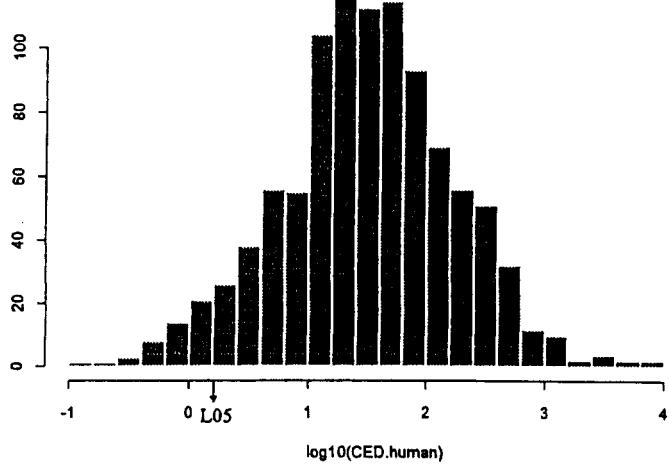
P87 = 1000

P95 = 3300



This slide shows the probabilistic combination of (distributions of) assessment factors

## CED-human for EXA



P5 =  $0.25 \text{ mg.kg}^{-1}\text{bw.d}^{-1}$

AFtot relative to NOAEL is 1600

**nlvrm**

# Conclusions and recommendations

- Long-term goal: probabilistic RA?
- Stepwise-implementation
  - Investigate further distributions of AFs
  - Investigate further probabilistic benchmark procedure
  - Investigate further probabilistic exposure assessment
  - Communication with risk managers
- Further research:
  - Interspecies extrapolation need further analysis of variability in toxicokinetics (scaling) and pharmacodynamics
  - Intraspecies: research into human variability
  - Refinement of extrapolation for study period
  - CES-derivation