FREDERICA Database Update
Quality Control Analysis

EMRAS-II. Effects group (WG-6).
Vienna, 26-27 January 2010

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EMRAS-II (WG6): FREDERICA Update

TASK	Participants	Deadline
Literature survey	Stanislav GERAS´KIN Nele HOREMNAS Almudena REAL Tatiana SAZYKINA Karolina STARK Synnove SUNDELL-BERGMAN Hildegarde VANDENHOVE Satoshi YOSHIDA	March 2009
Add new data to FREDERICA database	Laura NEWSOME Nele HOREMNAS Almudena REAL Karolina STARK Synnove SUNDELL-BERGMAN Hildegarde VANDENHOVE Christine WILLDROT Satoshi YOSHIDA	June 2009
QA/QC and score entry	David COPPLESTONE Almudena REAL Synnove SUNDELL-BERGMAN Christine WILLDROT	**Sept 2009** **Jan 2010**

FREDERICA Update: Literature survey

Review:

- Japanese literature
- Russian literature
- New data 2006-2009
- UNSCEAR 1982; Turner 1975 refs.

Language	Number of references
Chinese	1
French	2
Japanese	7
Russian	255
English	405

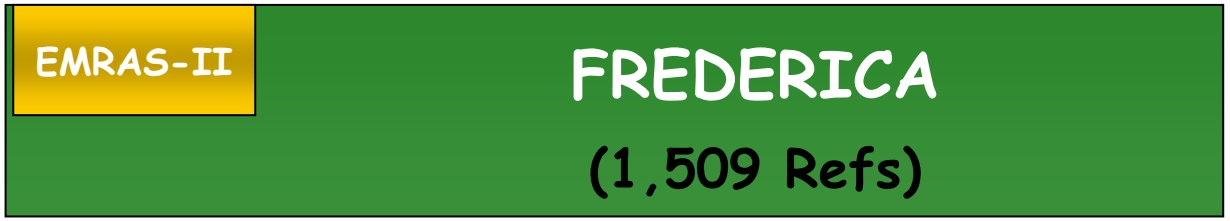
Rejected references:

- No numerical data (Review papers)
- No relevant endpoints (morbidity)
- Type of exposure.
- etc.

FREDERICA Update: Add new data

141 papers have been included in FREDERICA

- **Wildlife groups**: Mammals (36%); Amphibians (11%); Insects (8%); Protozoa (8%), Others (fish, crustacean, mollusc, aq. plants, soil fauna, fungi) (37%)
- **Type of exposure**: Acute (75%); Chronic (25%)
- **Umbrella effects**: Mortality (30%); Reproduction (28%); Morbidity (27%); DNA damage (11%); Others (4%);



FREDERICA Update: Quality Control Analysis

DOSIMETRY	Marks available
Determination of Dose	**Select each appropriate statement and add the scores of these statements together**
No value for dose given	0
Type of TLDs given	1
Number and position of TLDs given	1
Total dose could be calculated from information given	1
Value for dose given	1
Calculation of dose given	1
Determination of Dose Rate	**Select one statement only and enter that statements score**
Dose rate not given	0
Dose rate can be calculated from the information given	3
Dose rate determined	5
Background levels	**Select one statement only and enter that statements score**
No background dose or dose rate given	0
Background dose/dose rate can be calculated	3
Background dose and dose rate given	5
TOTAL FOR SECTION	MAXIMUM 15

FREDERICA Update: Quality Control Analysis

EXPERIMENTAL DESIGN	Marks available
Endpoint analysed	**Select each appropriate statement and add the scores of these statements together**
Endpoints do not come under the FASSET umbrella endpoints	0
One FASSET umbrella endpoint considered	1
Two or more FASSET umbrella endpoints considered	2
One specific endpoint studied and methods stated	1
Two or more specific endpoints studied, methods stated	2
Ecological relevance of endpoint stated	1
Control Groups	**Select one statement only and enter that statements score**
No Control group	0
Control groups used	3
Information confirming that control groups are kept in comparable conditions to experimental groups given	5
Exposure conditions to radiation	**Select each appropriate statement and add the scores of these statements together**
Only one dose/dose rate used	1
More than one dose/dose rate used	2
Details of source(s) given (use of multi nuclide sources if applicable)	2
Duration of exposure given	1
Test Organism	**Select each appropriate statement and add the scores of these statements together**
Species named	1
Sex (if relevant) and life cycle stage stated	2
Source of test organism stated	1
Details of husbandry/maintenance stated	1
TOTAL FOR SECTION /20 * 2	MAXIMUM 40

FREDERICA Update: Quality Control Analysis

STATISTICS	Marks available
Number of replicates of the experiment	**Select one statement only and enter that statements score**
No replicates	0
1-3 replicates	2
4-6 replicates	3
7-9 replicates	4
10 or more replicates	5
Number of individuals	**Select one statement only and enter that statements score**
1-3 individuals	2
4-6 individuals	3
7-9 individuals	4
10 or more individuals	5
Number of points per curve	**Select one statement only and enter that statements score**
No dose response undertaken (only one dose given)	0
2 points	1
3 points	2
4 points	3
5 points	4
6 or more points	5
Method used for statistical analysis	**Select each appropriate statement and add the scores of these statements together**
No statistical methods used	0
Name of statistical methods stated	1
Calculation of statistics stated	2
Reasons/justification of statistical methods used stated	2
Confidence Limits	**Select one statement only and enter that statements score**
No confidence limits given	0
All significant differences reported to <0.10	2
All significant differences reported to <0.05	3
All significant differences reported to <0.01	5
TOTAL FOR SECTION	MAXIMUM 25
GRAND TOTAL	**MAXIMUM 80**

FREDERICA Update: Quality Control Analysis

Grade as shown in FREDERICA	Equates to a score between	Supporting details
A	71-80	Paper contains all relevant information and can be used within a radiological assessment and for deriving screening levels
B	61-70	Paper contains most of the relevant information and can be used within a radiological assessment and for deriving screening levels
C	41-60	Data should be ok for use within the assessment although it may be deficient in data under a particular criteria. This data and above is used by default in any ERICA assessments
D	21-40	Some data deficient, we recommend that you review the review scores to determine whether the information is fit for your purpose. For example, in some cases it may be that the information on the statistics is not given and this may be important if you are trying to use the data to define species sensitivity distribution curves. However, data may be suitably used in the derivation of a lookup table to determine an effect that may be observed at particular dose rate.
E	0-20	Very few experimental details provided, the data should be used with caution

FREDERICA Update: Quality-Control Analysis

141 Refs

135 References

42 References QC<35

93 References QC>35

85 References (pdf available)

19 NO Dose-response (single dose)

66 Data sets "potentially" useful for Dose-Response Analysis

27 Data TABLES or TEXT

12 Data TABLES & FIGURES

27 Data FIGURES

PROTECT Project: SSD analysis

References with QC >35 points

FREDERICA Update: Dose-Response Analysis

66 data sets potentially useful for Dose-Response Analysis

15 data sets on **CHRONIC IRRADIATION**:

- 2 data sets on Mortality,
- 6 data sets on Reproduction
- 3 data sets on Morbidity
- 4 data sets on Mutation

51 data sets on **ACUTE IRRADIATION**:

FREDERICA Update: Dose-Response Analysis

51 data sets on ACUTE IRRADIATION

22 data sets on **MORTALITY**:

- 12 Tables (5 Insects, 5 Mammals, 2 Tardigrada)
- 10 Figures (2 Insect, 2 Protozoa,2 Green algae, 1 Freshwater fish, 1 Filamentous fungi, 1 Daphnia, 1 Unicellular protist)

18 data sets on **REPRODUCTION**:

- 11 Tables (5 Mammals, 3 Insects, 1 Plant, 2 Tardigrada)
- 7 Figures (2 Insect 4 Mammals 1 Invertebrate)

11 data sets on **MORBIDITY**:

- 6 Tables (1 Plant, 1 Fish, 1 Nematoda, 2 Unicellular protist, 1 Ciliate protozoa)
- 5 Figures (1 Mammals, 2 Unicellular protist, 1 Aquatic invertebrate, 1 Green algae)

FREDERICA Update: FUTURE WORK

- Check reference data entered in FREDERICA
- Finish QC analysis (only 6-8 references)
- New references ??
- Jaqueline: Dose-Response Analysis