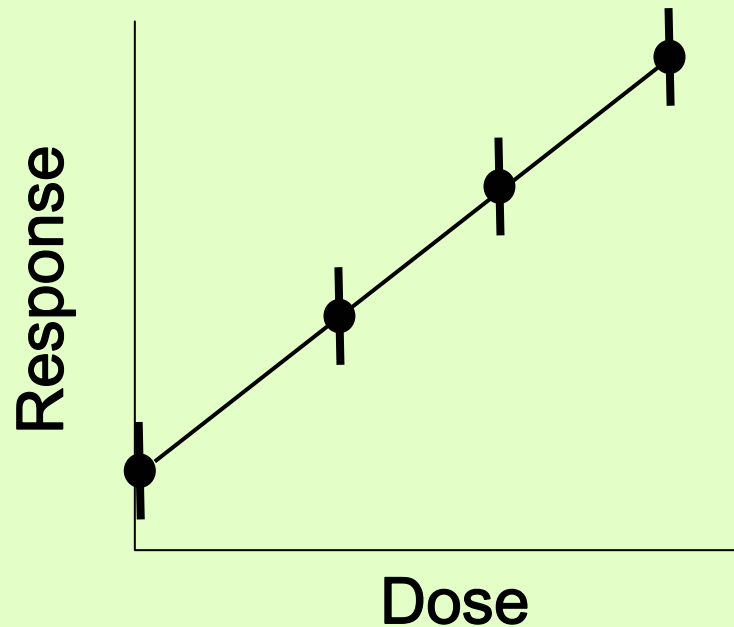


An Overview of the Session;
***A Challenge to Scientific
Risk Estimation on Health Effects
of Low Dose Radiation***

Tetsuya Ono

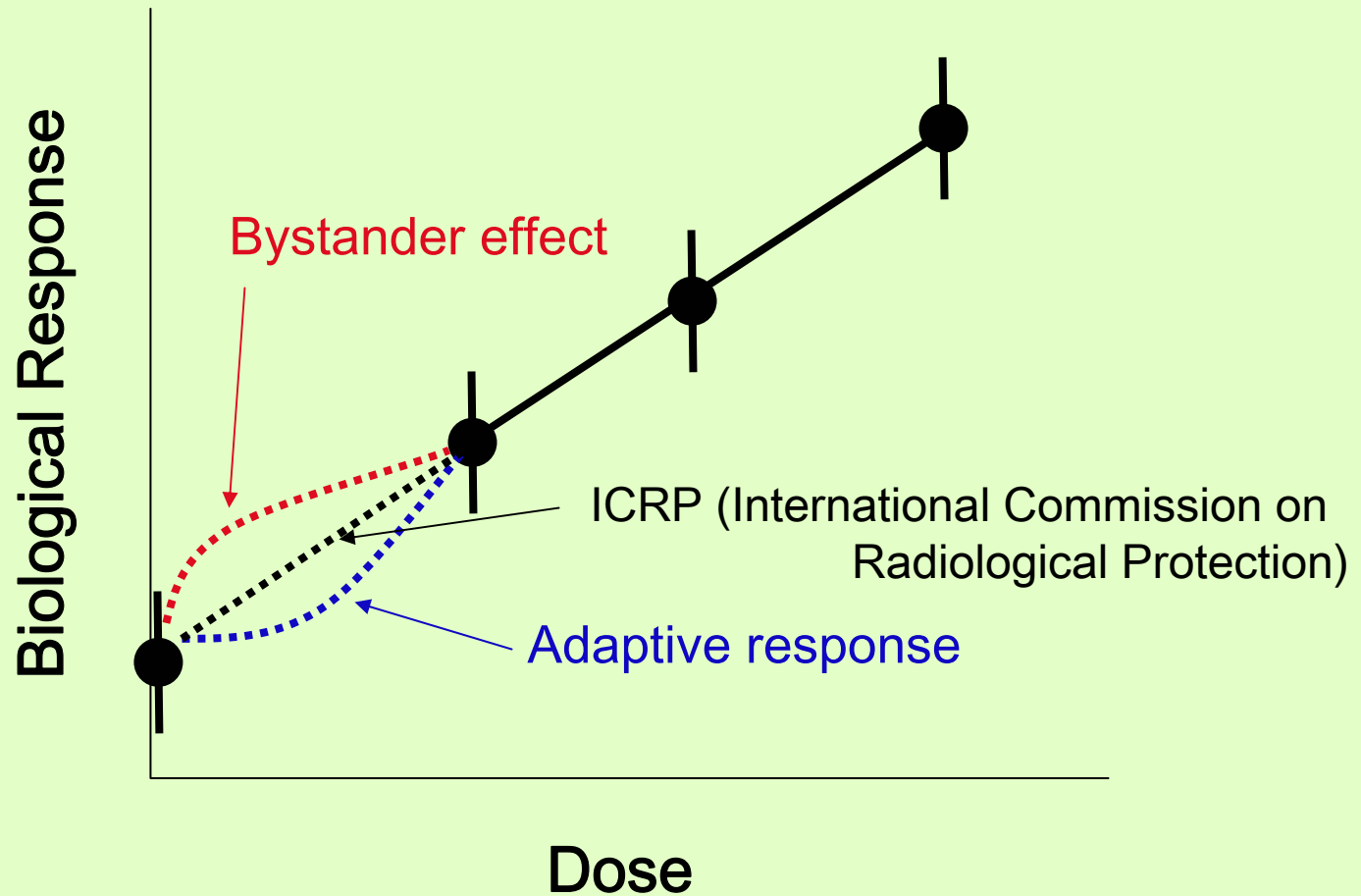
Dept Cell Biol, Tohoku Univ Grad Sch Med
Sendai, Japan

We are facing many environmental toxic agents.
The risk estimation of these agents should be based on
dose response curve.

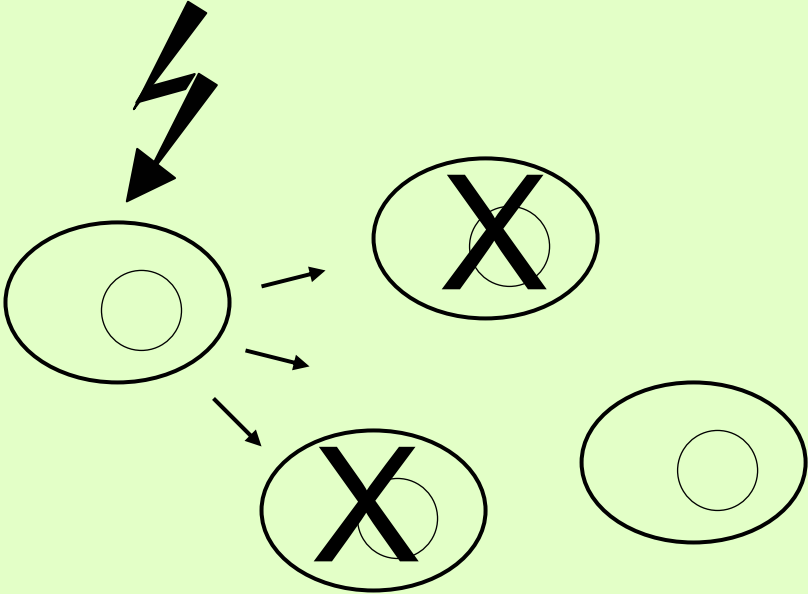


The response in a low dose range could be extrapolated from
high doses if it is a physical system.
However, it is not true in biological systems.

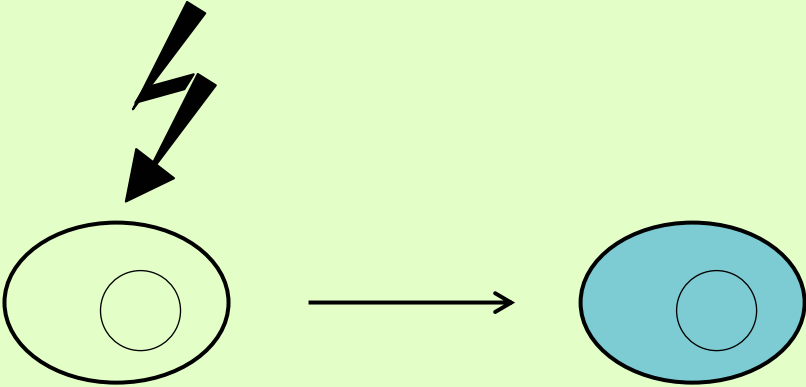
Biological response to low dose radiation is complicated.



Bystander effect



Adaptive response



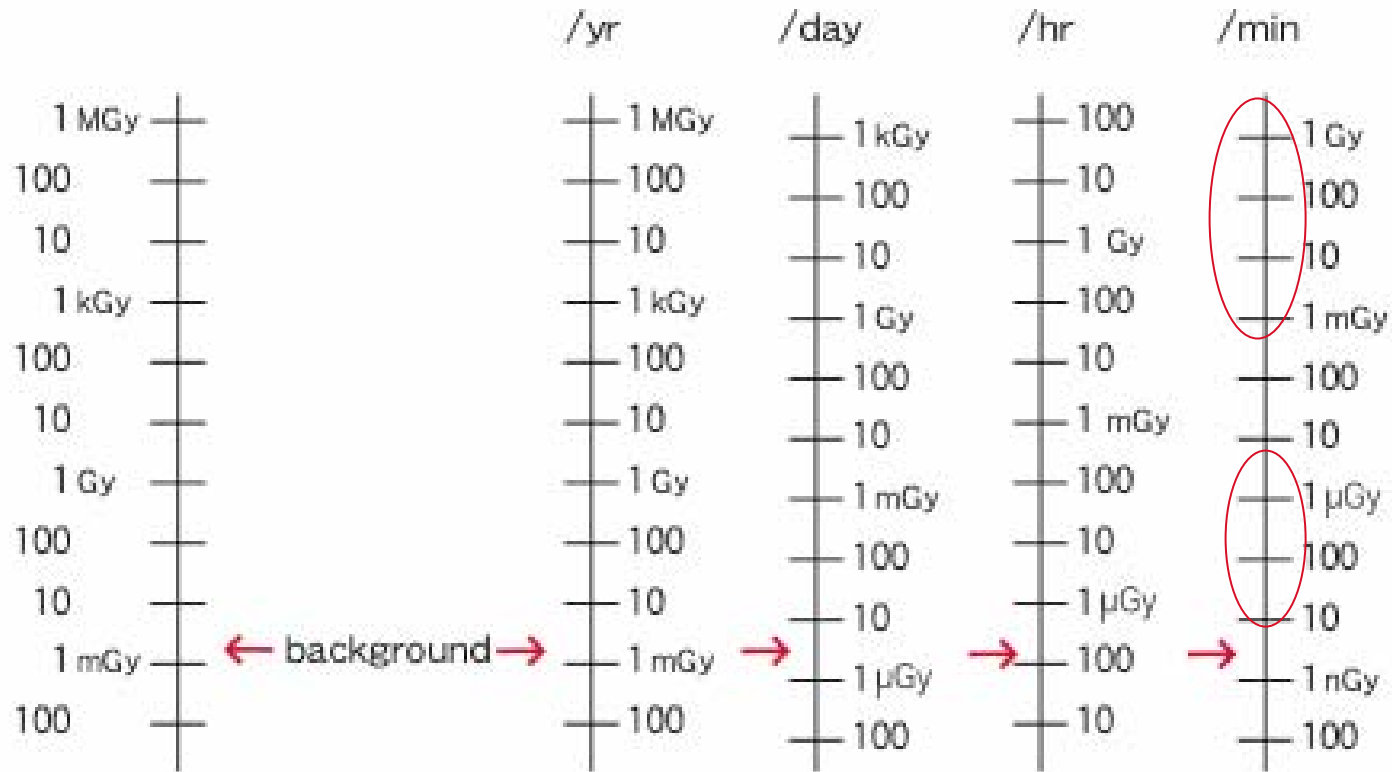
**In the biological systems,
the dose response at low dose level cannot be
extrapolated from high dose response.**

**Instead, experimental as well as epidemiological
studies are needed to clarify the dose response.**

Biological responses at low dose rate radiation is different from those at high dose rate radiation

Total dose

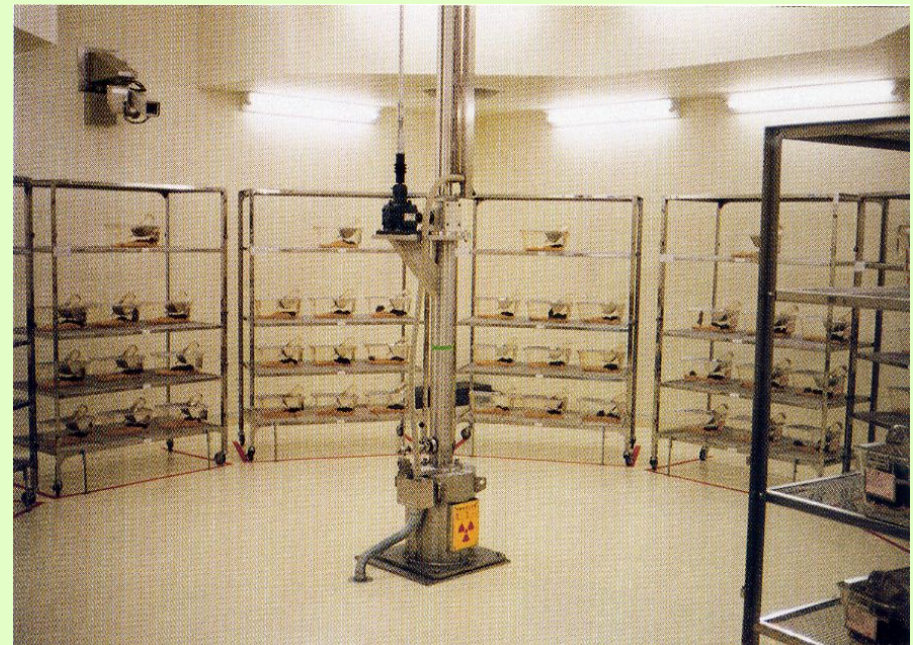
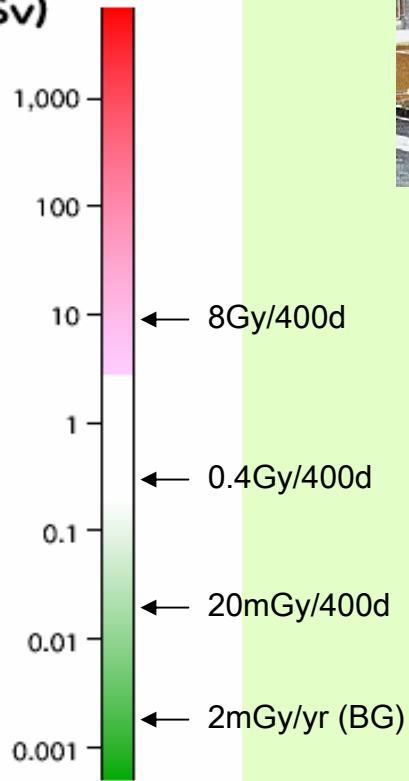
Dose rate



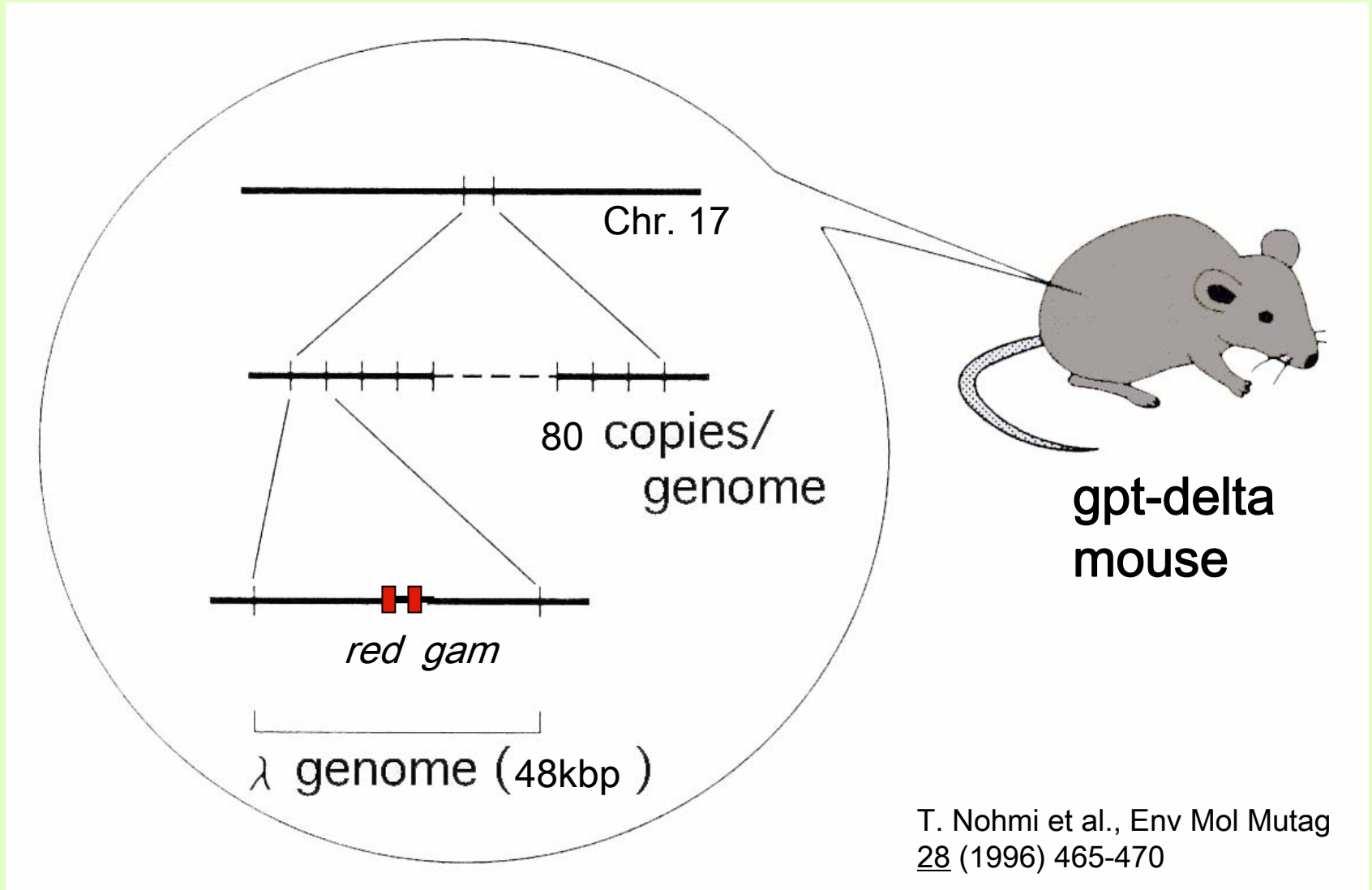
Institute for Environmental Sciences



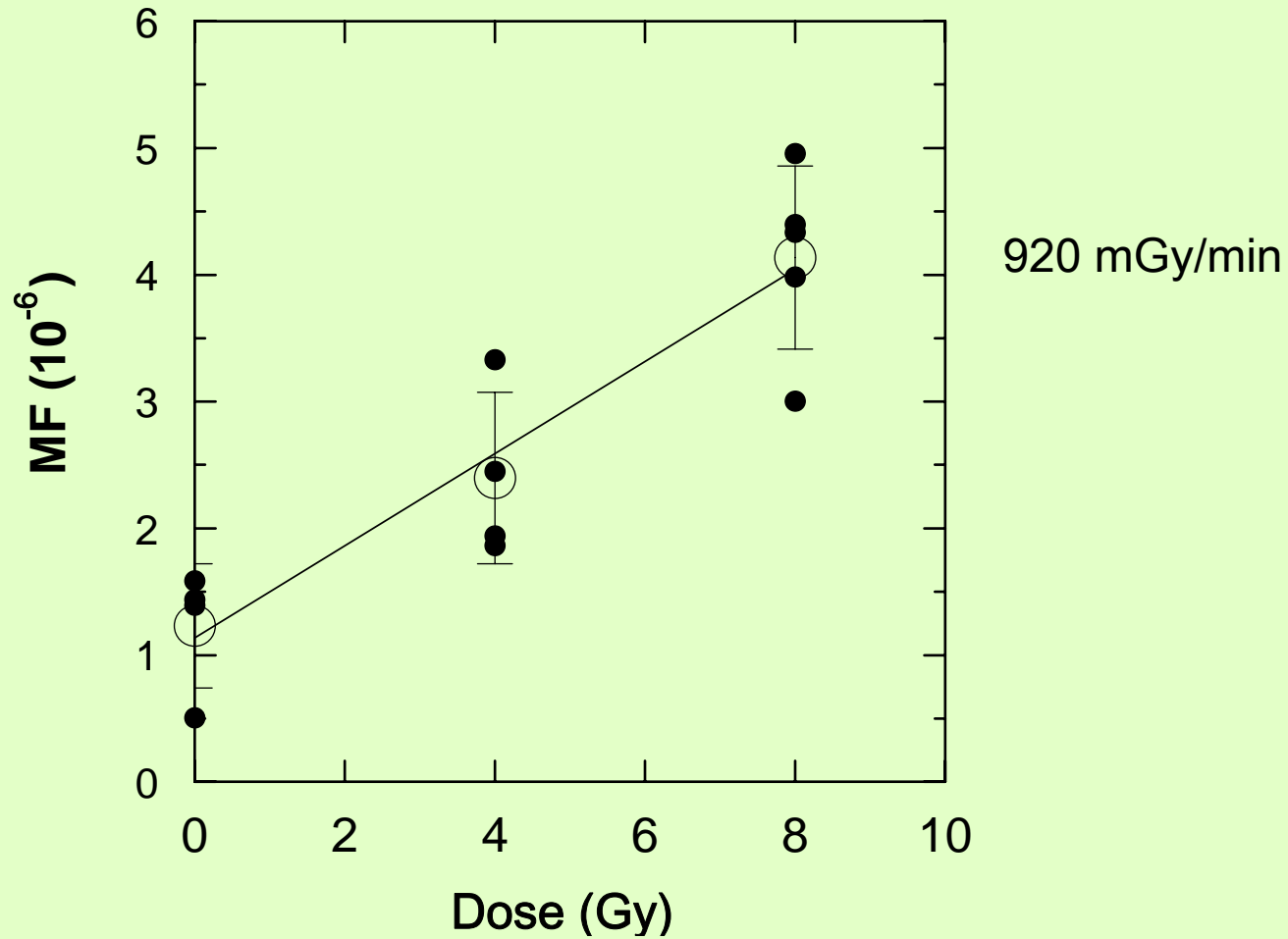
Dose (Sv)



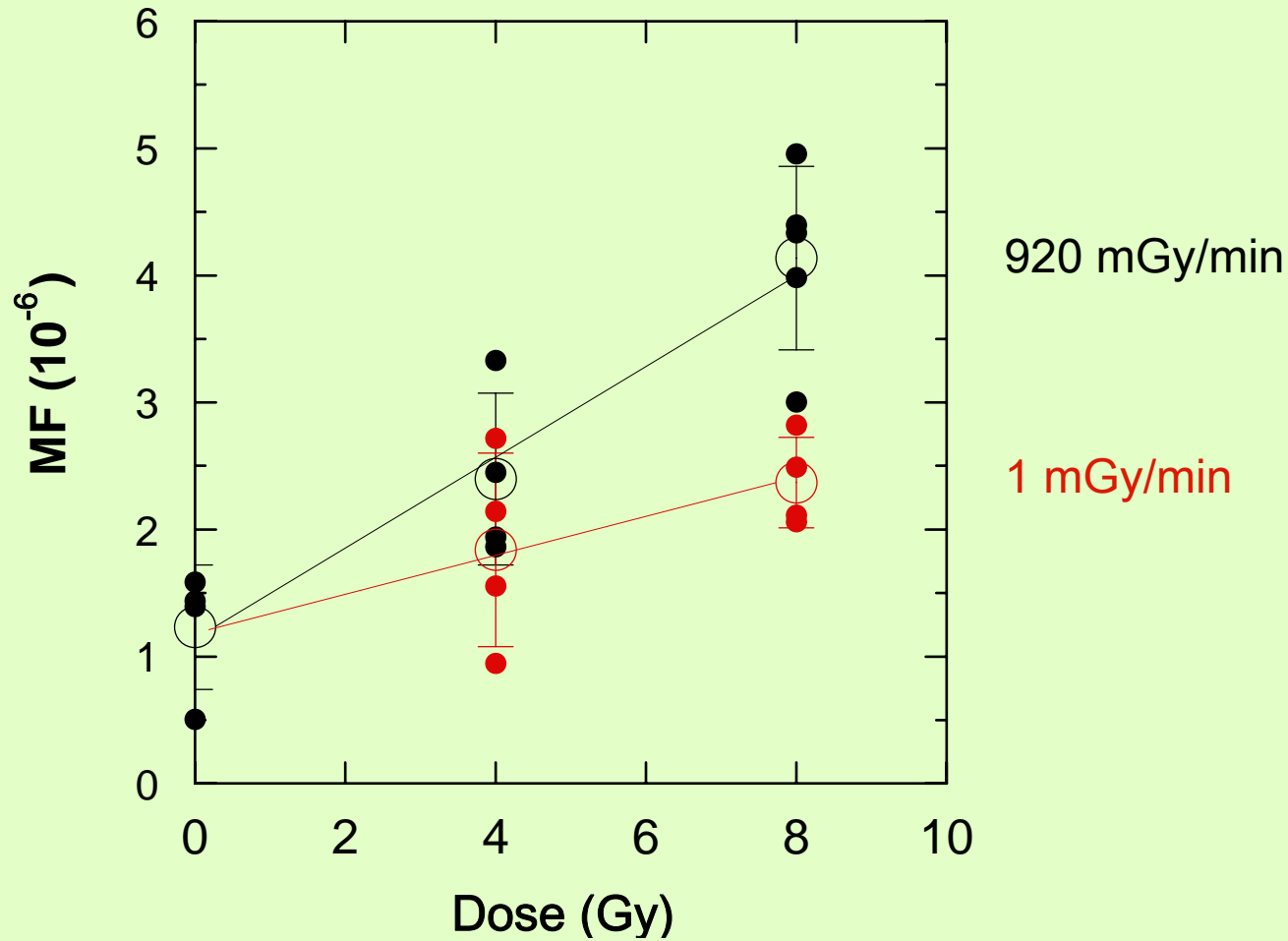
Schematic illustration of gpt-delta mouse



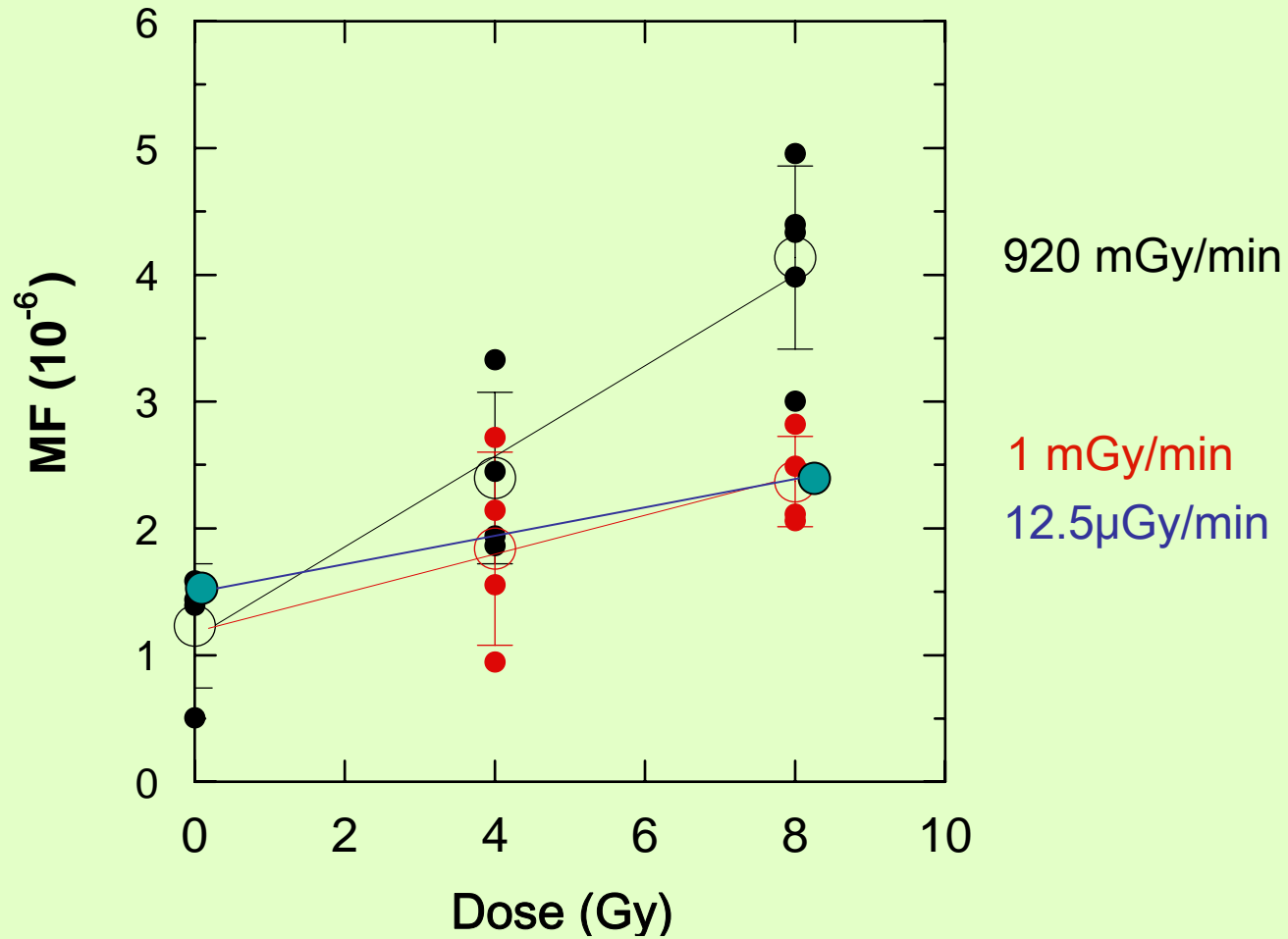
*Radiation-induced mutation
in liver of gpt-delta mouse*



*Radiation-induced mutation
in liver of gpt-delta mouse*



*Radiation-induced mutation
in liver of gpt-delta mouse*



Speakers of the session

Wei Zhang: Chromosomal abnormality in people living in high background area.

Takehiko Nohmi: DNA changes induced when chemical carcinogen and low dose radiation are exposed at the same time.

Mitsuru Neno: Changes in gene expression after a long period of exposure to low dose rate radiation.

Noriyuki Ouchi: Computer modeling of radiation effects including DNA damage and repair.