

Radiation effects of living cells and DNAs

Novel techniques of dosimetry
Advancement of radiological cancer
therapy

1. Research brief and purpose

Recent several years, undamental studies on radiological treatment was carried out. In addition, radiation effects of living cells and living body for radiation protection has also been studied. I bring up the talented person who has enough experimental technique and wide knowledge about radiation physical, chemical and biological effects.

2. Establishments and current research subjects

Radiation Effects on living cells

Collaboration with Osaka Univ., Osaka Pref. Univ., WERC, JAEA-Takasaki, NIRS *etc.*

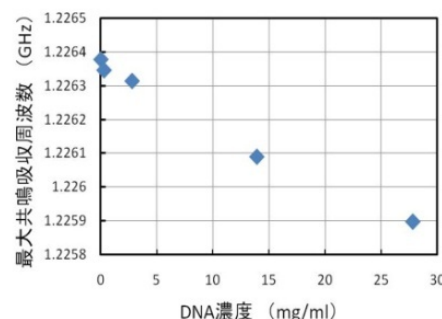
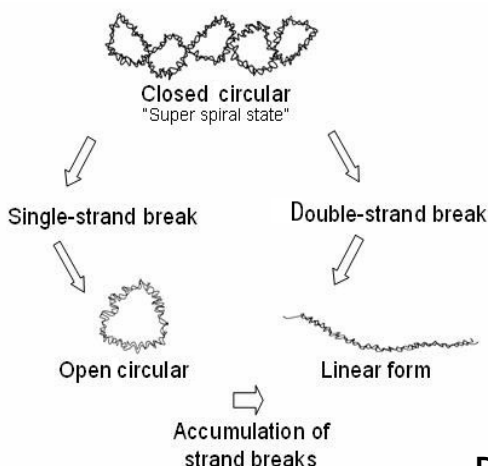
Our group studies radiation effects on living cells using various LET (g-, proton and carbon beams). We analyzed survival ratio, mutation frequency, genetic sequence of irradiated cells. From these results, we discuss from viewpoints of radiation chemistry and biology.

Novel dosimetry based on changein DNA-structure using micro-wave technique

Collaboration of Fukui University of Technology.

We developed a technique for evaluation of DNAs using microwaxe technology. We are studying the improvement of this technique for application to low-dose measurement and evaluation.

Novel dosimetry based on degradation of DNA chains are also studied.



Detection and evaluation of genomic DNA is succeeded.

DNA: extracted from a eukaryotic nucleus.

DNA evaluation system and results (example) using a microwave technique

3. The appealing points and future prospects

Integrated understanding
(including physical, chemical,
and biological reactions)

Various kinds of analytical
techniques

Contribution to radiation
safety and protection,
Promotion of radiation
application and processing

Message to students

I perform education and study under positive collaboration with other staffs whose fields are near from mine. Students in my Lab. can study via using accelerator facilities and ^{60}Co facilities. So, students can interchange with the frontier researchers in these fields.