

Small Animal Irradiation Platform

Development of radiation countermeasure agent requires screening of several molecules on small animals. The irradiation geometry and ability to handle multiple animals is important and no ready-made solutions are available. In most of the laboratories, makeshift arrangements without much description are published as research papers. Such geometry and irradiated dose cannot be replicated in other laboratories and therefore true comparison of lead findings is difficult. Further, irradiation of multiple animals is necessary to reduce time and variability during experimentation. Development of laboratory animal models mimicking the actual field conditions is a challenge. Delivering radiation to specific region or organs that can benefit the understanding of radio-biological effects in human is extremely difficult and a major challenge in countermeasure development. Though, high precision targeted irradiation platforms for single animal are available, they may not be sufficient for screening of potential countermeasures on large group of small animals in reproducible manner among multiple facilities or institutions.

About the technology

Small Animal Irradiation Platform has been designed and developed by INMAS for performing localized, partial body, multi-organ (head, thoracic, hind limbs and whole abdomen), and whole body irradiations to small animals (mice, rats and rabbit) against gamma radiation (Co^{60} Tele radiotherapy). This can also be used for other gamma energy source such as ^{137}Cs and X-ray irradiators. The shielding designs are optimized to provide proper protection to organs at risk (95% shielding) from high energy gamma radiation. The platform is provided with manual vertical movement for easy setups. A dosimeter for radiation dose estimation is also provided. The animal irradiation using this platform can be continuously monitored using CCTV device.

This platform will therefore allow simultaneous localized irradiation of mice or rats or rabbit and efficacy assessment of therapeutic radiation countermeasures agents.