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Proton radiobiology and therapy on eyes

The HZB cyclotron continues to provide protons for eye tumor treatment in collaboration with the Charité – Universitätsmedizin Berlin after 27 years and more than 5000 patients so far. Despite this established success, ongoing research aims to further improve the therapeutic outcome. In-vivo experiments with ultra-high dose rate irradiation (Flash) have exhibited enhanced preservation of the retina as a result of numerous differential molecular and cellular responses with respect to conventional irradiation. Additional investigations of biological responses at different depths along the spread-out Bragg peak highlight the potential of tailored irradiation parameters for the ocular treatment.

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