Mayo Clinic – Rochester has developed a program for pencil-beam, spot-scanned, gantry-based treatment of ocular tumors. The main components are

- A holder that mounts on the nozzle and accepts patient-specific, 3D-printed apertures
- An infrared illumination ring that supports a camera and adjustable gaze target
- Gaze-tracking software developed in-house to auto-gate the beam

The system can deliver full dose to volumes \leq 4 cm diameter and \leq 6 cm water-equivalent depth. The distal 90%-10% fall-off is 2.0mm. The lateral penumbra depends on aperture size and chosen spot configuration. A 2 cm diameter aperture can be used with a single central spot position with mid-SOBP 80%-20% penumbra of 1.3 mm.

Workflows for CT simulation, patient-specific QA, and treatment are under development. The first patient treatment is anticipated in Spring 2022.