

Intra-Ocular Lens Testing

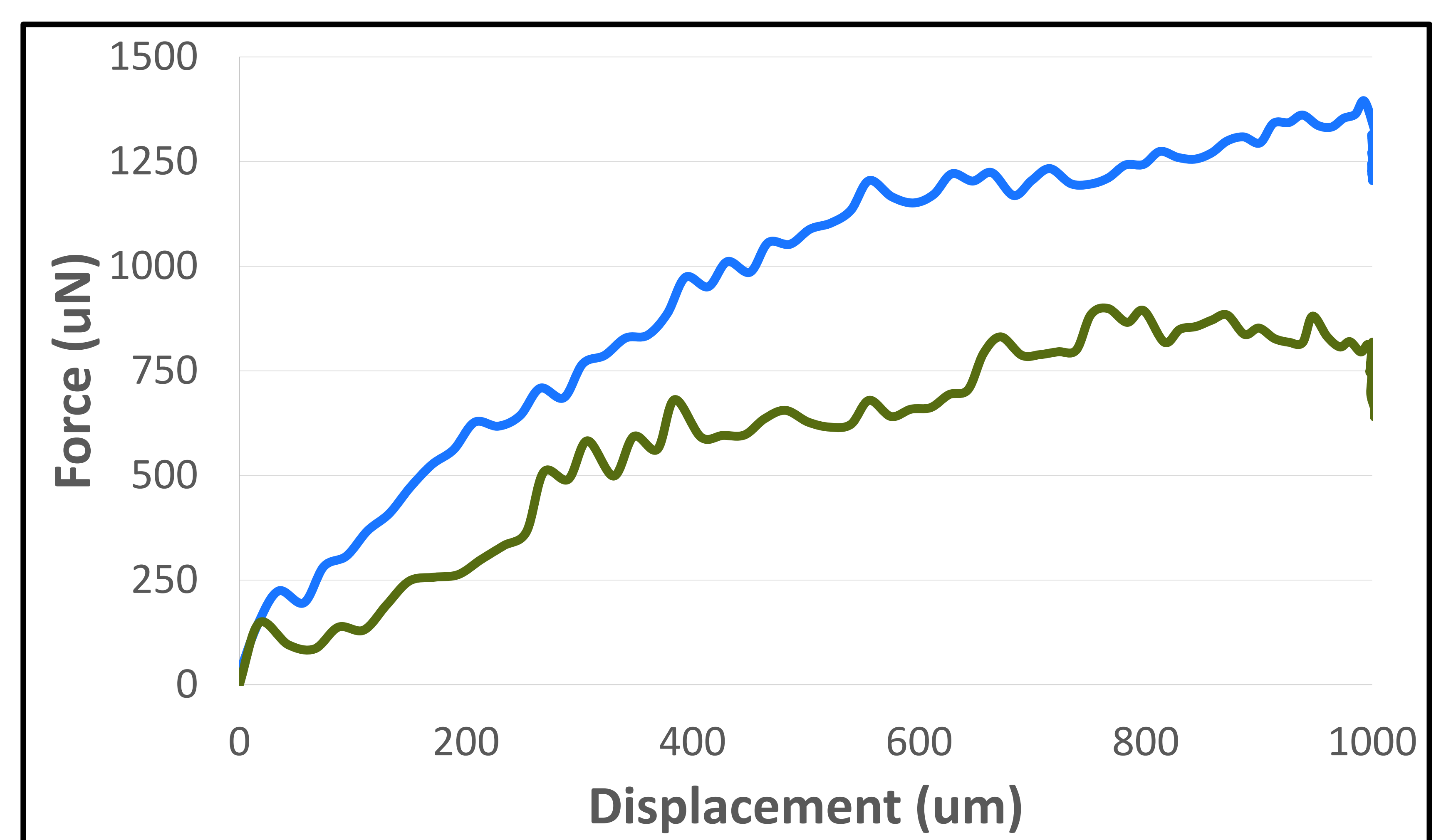
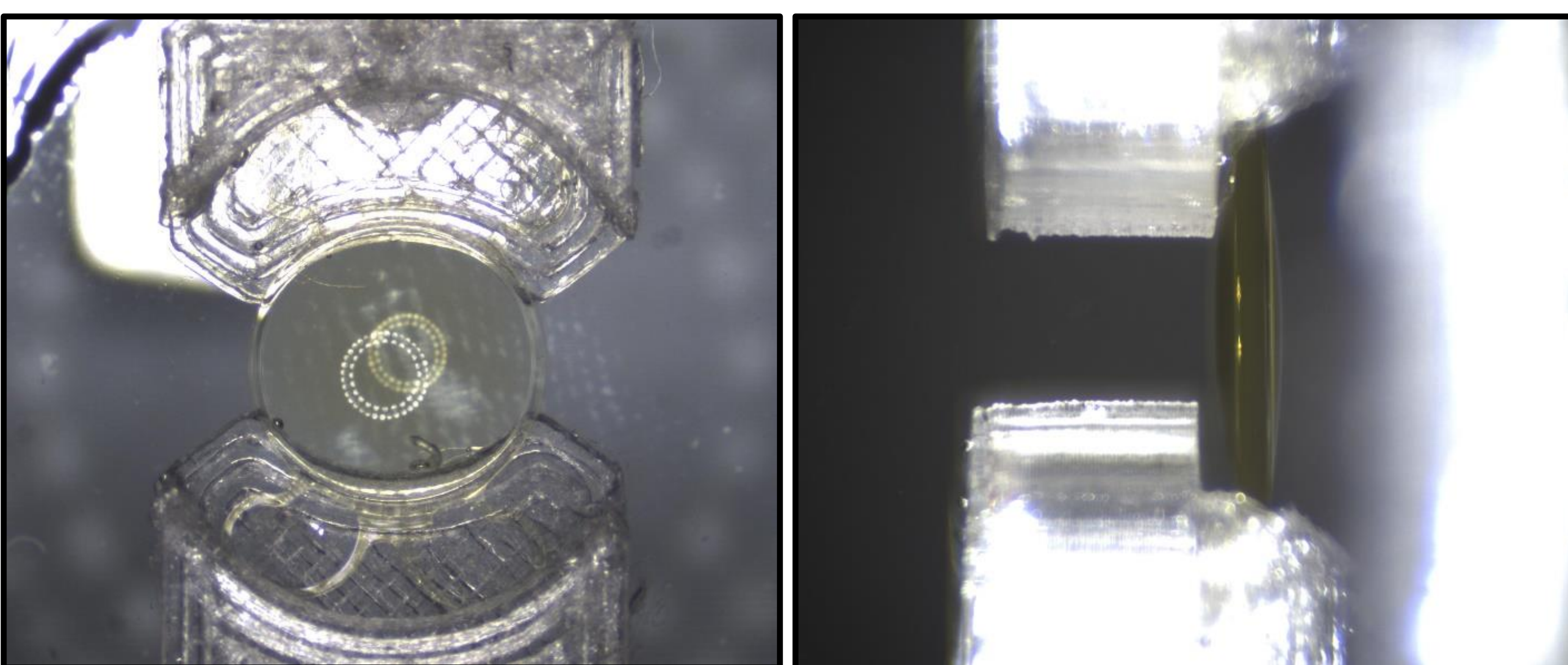
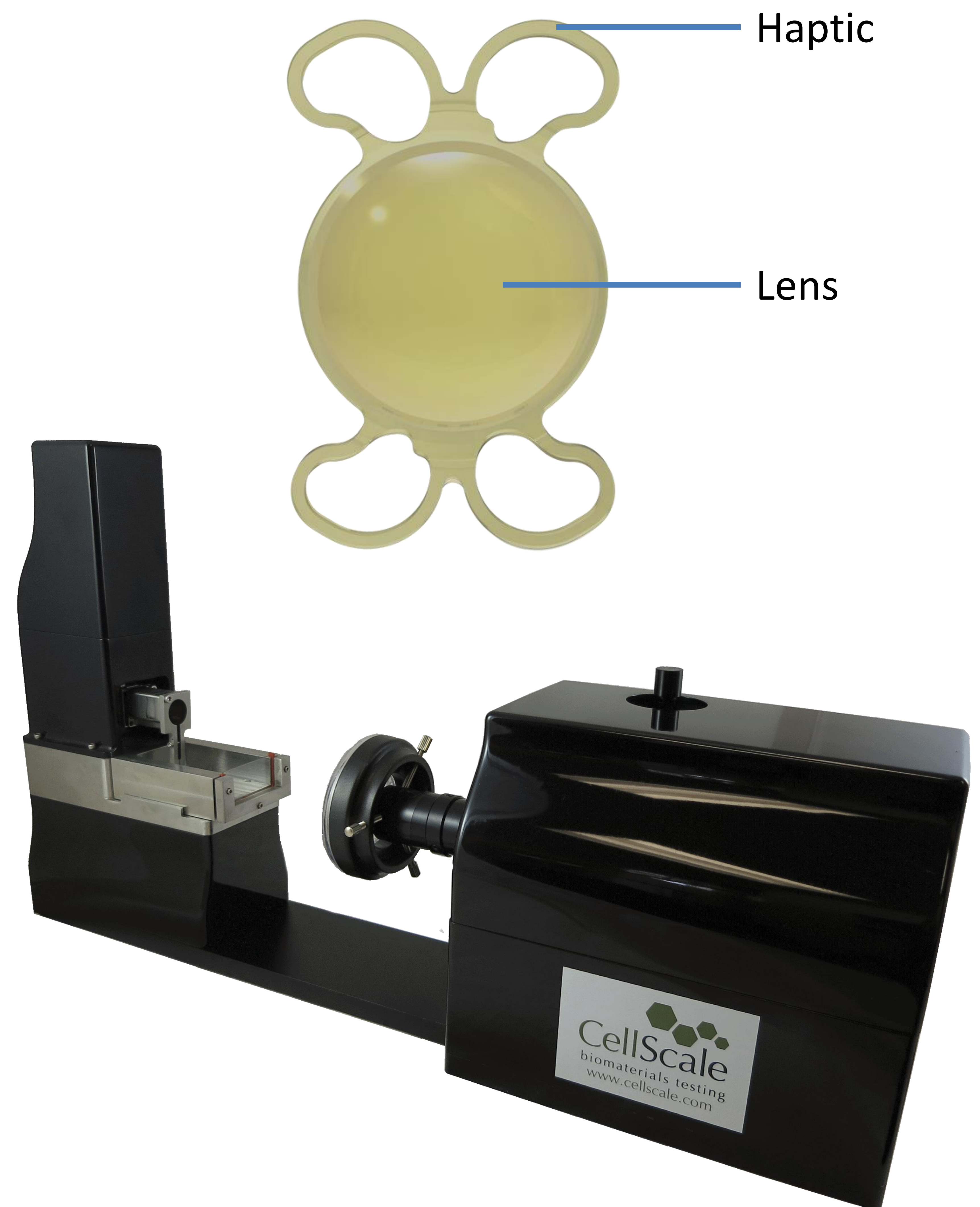
Overview

The MicroSquisher has been designed to perform tension and compression testing at low forces. The current IOL test standard (ISO 11979-3:2006) does not address the changing stiffness of IOLs as new materials are being introduced. This study was specifically related to the testing of the force exerted by the IOL haptics in order to hold their position within the eye. The IOL is comprised of a circular lens that is integrated with protruding haptics. The haptics push against the eye to hold the lens in position and alignment so that it can properly function.

Test Procedure and Results

Custom 3D-printed fixtures were produced for this application based on the ISO standard. While these fixtures were not sufficiently smooth to for quality test data, they were smooth enough to demonstrate the applicability of the test method. Two different types of IOL specimens were placed in the test fixtures and tested in compression according to the requirements of the standard.

The graph at the right shows the force vs. displacement curve for the lenses tested. As expected there was a difference between the 2 lens styles and the force range was such that a conventional load cell would not have sufficient resolution. One cause of the noise in the data can be attributed to the surface roughness of the 3D-printed fixtures.



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