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Precise Results Required for Embryo Biopsy

Testing embryos for genetic disorders, i.e., preimplantation genetic diagnosis (PGD), requires the safe and precise removal of a cell from the embryo (embryo biopsy). This technique, which is used during in vitro fertilization (IVF), occurs prior to the embryo's transfer to the uterus. In some countries, PGD must be approved by the government to ensure strict adherence to operational guidelines. The Unité Fonctionnelle de Diagnostic Pré-implantatoire is one of three centers approved by the French government to perform PGD.

As PGD Unit Director, Dr. Stéphane Viville oversees new PGD tests. In June 2000, Dr. Viville purchased the Hamilton Thorne ZILOS. Prior to the ZILOS, his lab used Tyrode's acid to burn through the zona pellucida. Results were inconsistent and potentially dangerous to the embryos.

Repeatable results were important goals in changing over to a laser-system. According to Dr. Viville, "We chose the

ZILOS because we felt it was the best system on the market. Hamilton Thorne commercial relations proved to be more professional than competitive companies. We needed to know that the laser system would be reliable and the after-sales service efficient and fast. Both aspects have met our expectations."

"On the ZILOS screen, we orient an eight-cell embryo so that the target area is on the right side of the screen. Using the Research fire mode, we create a wedge-shaped opening, wider on the exterior edge, tighter towards the cell membrane. This way the biopsy pipette is held tight when placed up against the blastomere to be removed. We slowly pull the blastomere out for testing."

Embryo biopsy is a technically challenging procedure. Dr. Viville praises the ZILOS's precise control settings for the intensity of the laser beam and the duration of the pulse to ensure embryo safety during biopsy.

"Because of the exacting nature of PGD procedures," Dr. Viville concludes, "intensive effort is required by

everyone on the team. It makes for a very busy and stressful day, but the ZILOS laser system helps relieve some of the stress."

If you have any questions you'd like to ask Dr. Viville, email him at viville@igbmc.u-strasbg.fr.

NOTE: The ZILOS and ZILOS-tk are for non-clinical research use only in the USA.

