

Direct Laser application in the EmbryoSlide culture dish

Laser systems are used in human assisted reproduction for various applications. One is to facilitate hatching of the blastocyst prior implantation. If the embryo does not hatch a pregnancy cannot occur. There are two techniques commonly used: laser assisted hatching (LAH) and laser zona thinning. In LAH a small artificial hole is made in the zona pellucida of an embryo using a laser. In zona thinning approximately one quarter of the zona is thinned by a laser thereby avoiding a complete zona opening.

Sandrine Chamayou (Unità di Medicina della Riproduzione, Catania-Italy, www.umrcatania.it) has performed a study where LAH was applied directly in EmbryoSlide culture dishes. LAH was performed on day 3 just before transferring the embryos to fresh media in a new EmbryoSlide culture dish. No significant difference in pregnancy rates (biochemical and clinical) between patients having LAH performed in EmbryoSlide culture dishes or in traditional culture dishes were found.

Laser Assisted Hatching

The embryo must hatch from the zona pellucida in order to implant in the lining of the uterus. Using a precision laser, either a thinning or a complete opening is made in the zona pellucida to weaken the wall of the embryo.

The opening as well as the thinning made by the laser facilitates the embryo hatching out of the zona pellucida. Zona openings are also used during subsequent biopsy at PGT procedure.

Thinning of the zona pellucida made by laser. *Opening of the zona pellucida made by laser.*



The opening of the zona pellucida is easily inspected using the high-quality Hoffmann modulation time-lapse images.

Pregnancy rate using LAH directly in EmbryoSlide culture dishes

Sandrine Chamayou, Unità della Medicina della Riproduzione, Catania-Italy (www.umrcatania.it) has performed laser-assisted hatching (LAH) directly in EmbryoSlide culture dishes. LAH was performed just before transferring the embryos to fresh media in a new EmbryoSlide culture dish, hence removing possible toxins caused by the laser. However, note that Vitrolife has not performed any internal tests validating the use of LAH on EmbryoSlide culture dishes.

Patients from the two groups were comparable in age and infertility indication. Embryo selection for transfer in the two systems was performed using similar morphological criteria. Biochemical pregnancy was confirmed by measuring hCG at day 16 after oocyte pick-up and clinical pregnancy was observed by FHB scanning at week 7.

	EmbryoSlide culture dish	Conventional culture dish	Fisher's Exact Test
N	46	42	p
Positive hCG	26 (56.5%)	25 (59.5%)	0.83
Clinical Pregnancy	22 (47.8%)	21 (50.0%)	1.00

No significant difference of pregnancy rate (biochemical and clinical) was found between treatments where LAH was performed directly in EmbryoSlide culture dishes and treatments where LAH was performed in conventional culture dishes.