

Fluorescence Lifetime Imaging Microscopy: egg and embryos under observation

Denny Sakkas

Boston IVF, Waltham MA, USA

The need to identify the most viable egg or embryo following in vitro fertilization (IVF) was established early in IVF. The stalwart of identifying the best embryos has been morphology. Other techniques have however seen wide acceptance, including the use of PGT. Non-Invasive assessment of metabolic signatures has consistently shown us that they can provide the basis for selecting the egg or embryo with the highest viability. This presentation will examine the current state of research on non-invasive technologies with a large focus on optical methods, including fluorescence-lifetime imaging microscopy (FLIM). All these technologies can now provide safe additional spectroscopic data on embryo metabolism and other viability indicators, and they thus have the potential to produce superior clinical tools for embryo assessment. The presentation will show that non-invasive embryo viability assessment is alive and well and will play a major part of improving IVF in the future.