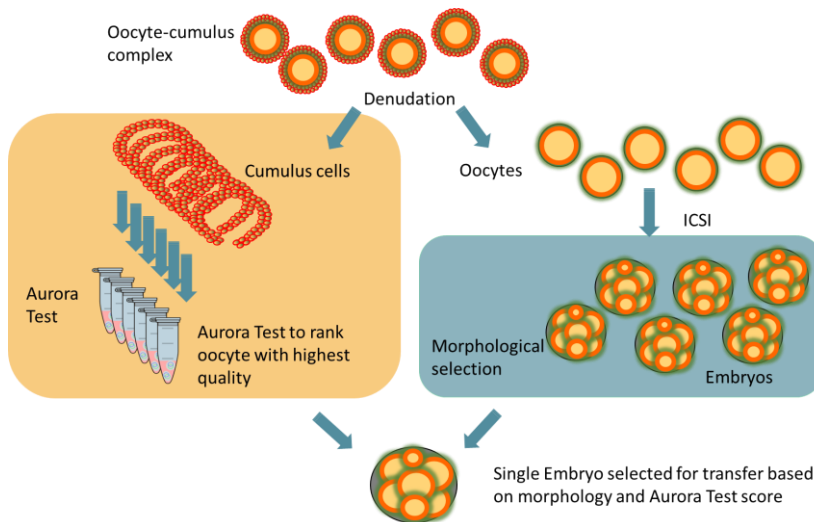


# The Aurora Test

## Oocyte competence prediction

The Aurora Test measures the potential of an oocyte to develop into a normal healthy child after ICSI. After testing the cumulus cells of each oocyte from a woman after hormone stimulation, the embryo from the oocyte with the highest potential will be transferred into the uterus.

Applying this technology in IVF practice has shown that pregnancy rates have doubled (from 29% to 61%) and live birth increased from 27% to 50% after transfer of a single embryo on day 3.



## Aurora Test principle

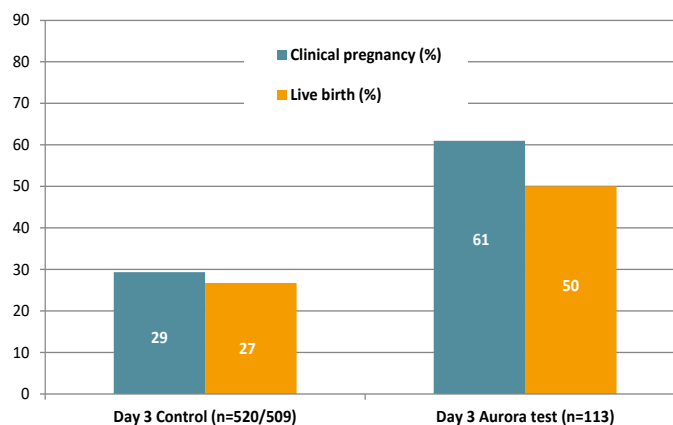
The Aurora Test is performed on cumulus cells from all oocytes from a patient. The test is based on the measurement of five specific gene expressions.

Cumulus cells are isolated from all oocytes and RNA is then extracted from the cumulus cells for each of the harvested oocytes. cDNA synthesis and real-time PCR is done using 3 predictive genes and two control genes. PCR results lead to a ranking for all oocytes.

Figure 1. Aurora Test principle

## Pregnancy rate doubled from 29% to 61% in a prospective clinical trial in Europe

- Two arm study: Aurora test arm with day 3 SET and a control arm with day 3 SET without Aurora Test
- 113 tested patient (majority Caucasians and some Arab patients) and 520 control patients
- Age 22-39 years of age, good ovarian response, no severe male infertility
- Stimulated by HP-hMG (Menopur) and single-embryo transfer (SET) policy



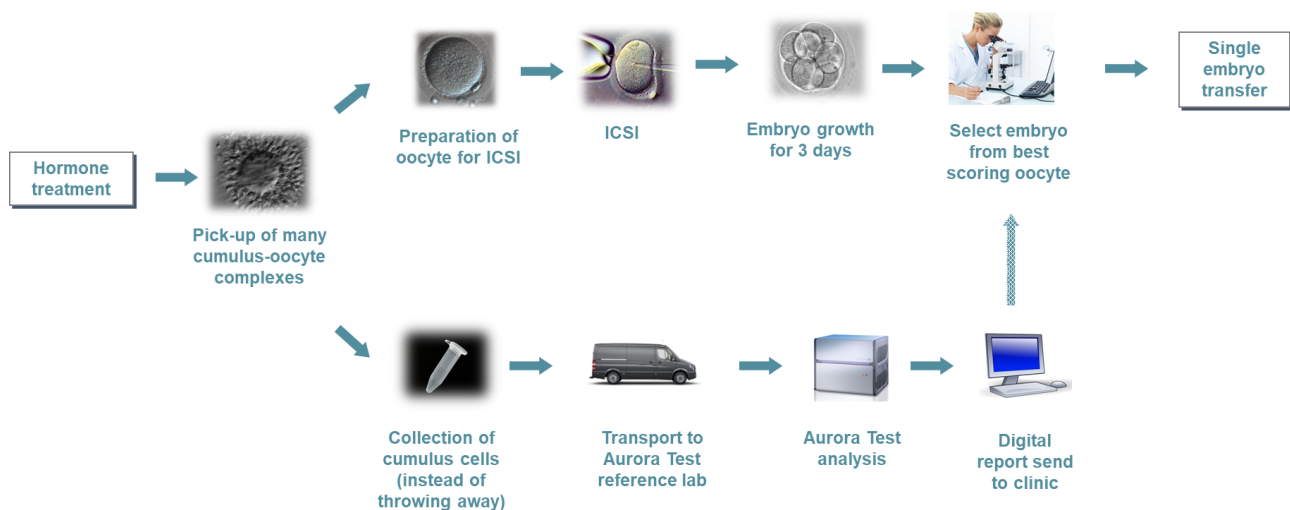
## Inclusion criteria

The application of Aurora Test is validated for patients with the following criteria:

- Stimulation with HP-hMG hormones (e.g. Menopur) followed by ICSI
- Patient age between 22 to 39 years, good ovarian reserve, excluding severe male infertility
- Single embryo transfers on day 3 (fresh or frozen) to avoid twin birth

## Test service offered

- DAY 0: cumulus-oocyte complex pick-up. Cumulus cells must be removed for each oocyte by embryologist and individually collected into bar-coded tubes.
- DAY 0-1: Samples will be transported to a clinical testing lab nearby which runs the Aurora Test
- DAY 1-2: Aurora Test (RNA isolation, QPCR and analysis) is done in the clinical testing lab.
- DAY 2-3: Clinical testing lab will communicate Clinical Report to IVF clinic. Report gives a ranking of all oocytes and specifies which cumulus-oocyte complex has the best score.
- DAY 3: Embryologist uses this score besides his morphological evaluation to select the best embryo for transfer.
- In case there is no pregnancy from a first transfer, the supernumerary embryos which were vitrified will also be transferred following the score.



In the future, the Aurora Test application will be broadened to other gonadotrophins.

## Contact

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## Literature

1. Wathlet S, et al. Pregnancy prediction in single embryo transfer cycles after ICSI using QPCR: validation in oocytes from the same cohort. *PLoS One*. 2013;8(4)
2. Wathlet S, et al. New candidate genes to predict pregnancy outcome in single embryo transfer cycles when using cumulus cell gene expression. *Fertil Steril*. 2012 Aug;98(2)
3. Wathlet S, et al. Cumulus cell gene expression predicts better cleavage-stage embryo or blastocyst development and pregnancy for ICSI patients. *Hum Reprod*. 2011 May;26(5)
4. Adriaenssens T, et al. The cumulus cell gene expression profile of oocytes with different nuclear maturity and potential for blastocyst formation. *J Assist Reprod Genet*. 2011 Jan;28(1):31-40
5. Adriaenssens T, et al. Cumulus cell gene expression is associated with oocyte developmental quality and influenced by patient and treatment characteristics. *Hum Reprod*. 2010 May;25(5)
6. Adriaenssens T, et al. Cumulus-corona gene expression analysis combined with morphological embryo scoring in single embryo transfer cycles increases live birth after fresh transfer and decreases time to pregnancy. *J Assist Reprod Genet*. 2019 March 36(3):433-443
7. Van Vaerenbergh et al. Improved clinical outcomes after non-invasive oocyte selection and Day 3 eSET in ICSI patients. *Reproductive Biology and Endocrinology*. 2021 February 19:26