**PGT-A VIA NEXT GENERATION SEQUENCING: EUPLOID AND MOSAIC RATES BY AGE GROUP**

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**Abstract Body**

Preimplantation genetic testing for aneuploidy (PGT-A) is routinely offered to patients undergoing in vitro fertilization (IVF) treatment. The testing is commonly performed via next generation sequencing (NGS) on trophectoderm biopsy samples, providing a higher resolution than previous technologies and the ability to detect mosaicism. Euploid embryo(s) can then be selected to transfer, as those have the greatest probability of leading to a successful pregnancy and live born child. The goal of our study was to assess our current euploid and mosaic rates for PGT-A samples separated by the Society for Assisted Reproductive Technology (SART) age groups. All samples received from May 2018 through late September 2019 were tallied and results analyzed. Samples sent for PGT-SR (structural rearrangements) or samples from cases with suspected rearrangements were excluded. Whole-genome amplification and NGS analysis was performed using the Ion ReproSeq PGS Kit and data analysis was performed utilizing the Ion Reporter software (Thermo Fisher Scientific). Results were reported as 1) no abnormal cells detected, 2) abnormal cells detected (with percentages if mosaicism was identified), or 3) did not pass quality control (QC) metrics, leading to the following embryo categories: euploid, aneuploid, mosaic, and QC failure. A total of 15,986 samples were included in the analysis. Of these, 7,639 were euploid (47.8%), 2,315 were mosaic (14.5%), and 309 failed QC metrics (1.9%). Table 1 displays the euploid and mosaic rates. As expected, euploid rates decrease as maternal age increases. Interestingly, mosaic rates also appear to decrease as maternal age increases. This is largely due to the fact that while an embryo from a woman of advanced maternal age may have mosaic findings, it is also more likely to have a non-mosaic aneuploid finding - thus causing the embryo to be categorized as aneuploid.

**Abstract image**

## Table 1: Euploid and Mosaic Rates by SART Age Group

|  | Donors | <35yo | 35-37yo | 38-40yo | 41-42yo | >42yo |
|---|---|---|---|---|---|---|
| **Euploid** | 57.8% (2632/4552) | 55.6% (2329/4192) | 46.5% (1513/3257) | 35.8% (908/2533) | 20.6% (211/1025) | 10.8% (46/427) |
| **Mosaic** | 18.1% (823/4552) | 16.2% (680/4192) | 14.6% (476/3257) | 9.7% (246/2533) | 6.6% (68/1025) | 5.2% (22/427) |