# BIOPSY OF EXCLUDED CELLS IN TROPHECTODERM BIOPSY IN A NON TIME LAPSE LABORATORY: A case study

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## INTRODUCTION

Trophectoderm biopsy of the blastocyst has become the gold standard for PGT testing to identify aneuploid embryos. However, trophectoderm biopsy is a highly technical skills and requires the ability of the embryologist to differentiate between the actual cells of the trophectoderm and the cells that do not take part in the formation of the blastocyst. In a non time-lapse laboratory, this may occasionally pose a problem as the excluded cells may look like part of the blastocyst as its morphokinetics was not monitored throughout the development. Depending on when the cells are excluded from development, these cells can be found either sequestered on the perivitelline space or contain within the blastocoel cavity. They could also vary in sizes and level of differentiation, making it difficult to determine. In this case study, the TE cells of the blastocysts were difficult to be determined due high number of fragmented and excluded cells surrounding the blastocyst. Two biopsies were performed on the same blastocyst and result from their whole genome sequencing was compared.

## RESULTS

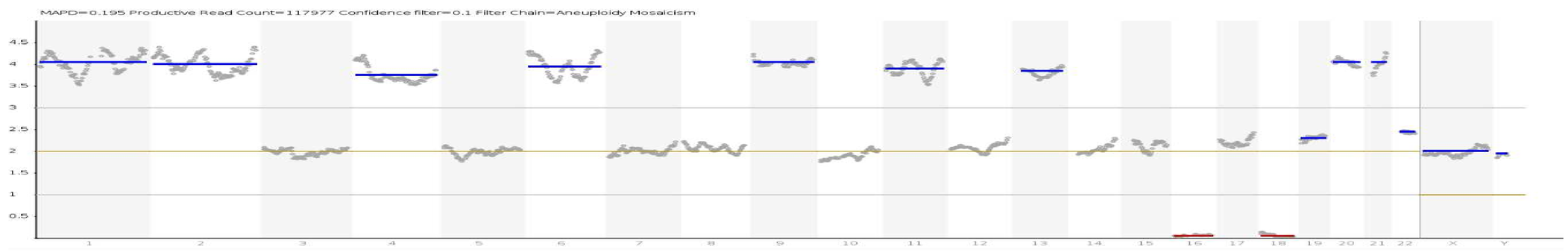


Figure 1a: Whole genome view of the excluded blastomere

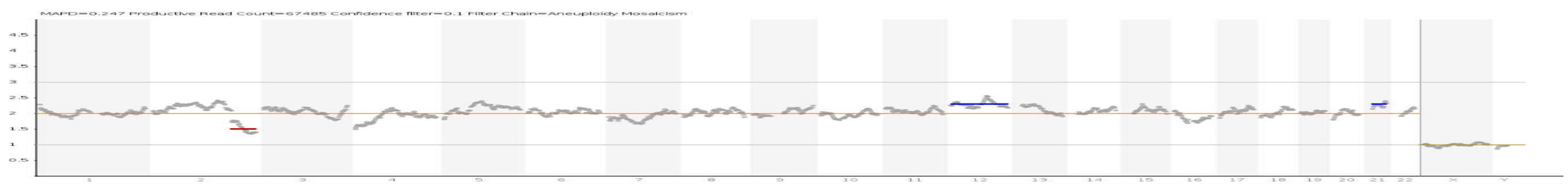


Figure 1b: Whole genome view of the corresponding TE biopsy from the same blastocyst

From the Figure 1a, it was found that the genome of the excluded cells shows a chaotic pattern. In Figure 1b, the graph showed a more linear pattern with clear indication of aneuplodies. The gender was also non-concordant as compared in both graphs.

## CONCLUSION

The excluded cells are not indicative of the ploidy status of the blastocyst and caution should be practice during the biopsy of these blastocysts. The excluded cells take no part in the development of the blastocyst and often shows an aneuploidy status or chaotic pattern. It can be hypothesized that these cells have been excluded as the embryo tries to eliminate the inclusion of these abnormal cells as part of the self-correcting mechanism. There are also evidences from karyomapping which showed that these excluded cells are the remains of the second polar body. Therefore, trophectederm biopsy should only be performed by trained and experienced personnel to avoid the risk of misdiagnosis especially in a clinical setting.

## REFERENCES

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