

# Case Report

## India's First Child using PGT-M, PGT-A and HLA Matching for Helping a Sibling having $\beta$ -Thalassemia Major

*Jwal M. Banker<sup>1</sup>, Parul Arora<sup>1</sup>, Rajni Khajuria<sup>2</sup>, Manish Banker<sup>1</sup>*

<sup>1</sup>NOVA IVI Fertility,  
Ahmedabad, Gujarat,  
<sup>2</sup>Igenomix, New Delhi, India

### ABSTRACT

$\beta$ -thalassemia is a common single-gene disorder in India, with hematopoietic stem cell transplantation (HSCT) being the only cure. HSCT with matched unrelated donor is less successful, whereas finding a human leukocyte antigen (HLA)-matched related donor is difficult. Preimplantation genetic testing for monogenic diseases (PGT-M) with HLA matching is a novel option to have a matched sibling for HSCT for couples having an affected child. We present the first such case report in India. A couple, both carriers of  $\beta$ -thalassemia and having an affected son, underwent PGT-M with HLA matching combined with preimplantation genetic testing for aneuploidies of embryos to have a  $\beta$  - thalassemia-free child. This resulted in birth of a 10/10 HLA-matched sibling.

**KEYWORDS:** *Human leukocyte antigen matching, hematopoietic stem cell transplantation, preimplantation genetic testing for aneuploidies, preimplantation genetic testing for monogenic diseases,  $\beta$ -thalassemia*