

# Preimplantation genetic diagnosis

**Preimplantation Genetic Diagnosis** (PGD) is a relatively new, highly specialized method designed to identify chromosomal aberrations or monogenically inherited diseases before the embryo is implanted in the uterus of the future mother. This method can therefore only be used in connection with an in vitro fertilization (IVF) program within the framework of assisted reproduction .

**The indication** for this method is a very high risk of congenital chromosomal aberration or serious monogenic hereditary disease for the offspring of the respective couple. It also concerns couples burdened by long-term unsuccessful infertility treatment (including unsuccessful IVF cycles), repeated abortions , etc. The current trend is to expand the spectrum of indications.

**Performing** the method requires a basic IVF protocol. Material for the relevant examination is obtained by biopsy:

- polar body (typically in countries where intervention in embryos is not legally permitted),
- blastomeres (most often),
- blastocysts.

This is followed by a molecular genetic or cytogenetic (or molecular cytogenetic) examination of the obtained material.

**The principle** of the method is to **implant only "healthy" embryos** - that is, those in which the observed abnormality was not proven during PGD (the exclusion of a mutation of the monitored gene , of course, does not exclude the possibility of a mutation of another - unexamined gene).

**The disadvantage** of this method is the limited amount of material to be examined (often only 1 cell!). Therefore, chromosomal mosaicism can be a big problem in a specific embryo. This method is quite controversial due to the intervention in the human embryo and its application is not legal in all states.

## Links

### Related Articles

- Prenatal diagnosis
- Congenital developmental defects
- Indications for chromosomal examination
- The first week of human development

### External links

- Preimplantation genetic diagnosis ([https://www.lekari--online-cz.translate.goog/lecba-neploдности/zakroky/prei-plantacni-geneticka-diagnostika?\\_x\\_tr\\_sl=cs&\\_x\\_tr\\_tl=en&\\_x\\_tr\\_hl=cs&\\_x\\_tr\\_pto=wapp](https://www.lekari--online-cz.translate.goog/lecba-neploдности/zakroky/prei-plantacni-geneticka-diagnostika?_x_tr_sl=cs&_x_tr_tl=en&_x_tr_hl=cs&_x_tr_pto=wapp)) (in Czech language)

### References

OGILVIE, CM – BRAUDE, PR – SCRIVEN, PN. Preimplantation genetic diagnosis--an overview. *J Histochem Cytochem* [online]. 2005, y. 53, p. 255-260, Available from <<http://www.jhc.org/cgi/content/full/53/3/255>>. ISSN 0022-1554.