

“BIOMARKERS IN INFERTILITY TREATMENT”**Bindu Mehta****Corresponding Author:** Bindu Mehta*, Scientist/ Clinical Embryologist, Vaunshdhara Clinic and Assisted Conception Centre, Conference Nagar, Nagpur 440012. E-mail: bindunm10@yahoo.com.

Treatment of infertility by Assisted Reproduction Technologies such as in-vitro fertilization and embryo transfer has been increasingly successful. However, we are still faced with a serious problem: only about 1 in 10 eggs retrieved from women undergoing infertility treatments are healthy enough to produce a pregnancy and birth.

Poorer quality eggs may be a major cause of infertility by making conception difficult or may cause early pregnancy loss or may result in miscarriage.

It is therefore essential to analyze the health of oocyte and embryo before implanting it into the uterine cavity. Since the technique of In-vitro fertilization is itself a relatively new science, research on oocyte and embryonic biomarkers is still in its nascent stage. Follicular fluid microenvironmental milieu is the site for oocyte production, growth and development. It is envisaged that the biological components in FF may serve as effective biomarkers of oocyte and embryo health.

Anti-muellerian hormone (AMH), a glycoprotein dimer of the transforming growth factor-beta (TGF- β) super family, is exclusively produced by granulosa cells of pre-antral and early antral ovarian follicles in the adult female and exuded into the FF. Therefore, AMH may serve as a biochemical indicator of functional viability/quality of oocyte.

Also, in-situ levels of follicular-fluid dehydroepiandrosterone-sulphate (FF DHEAS), an essential prohormone in ovarian follicular

steroidogenesis, influences oocyte competence to fertilize and produce a viable pregnancy.

IGF-1 has been reported to play a role in human follicular and embryonic development. Hence, in-situ follicular-fluid level of IGF-1 may be a marker of embryonic health and implantation rates in IVF cycles.

Global analysis of such metabolites in biological samples like follicular fluid addresses a relatively new Metabolomics approach towards identification of biomarkers.