9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Key Lectures

K-10
Development of synthetic protein-free chemically defined, safe and efficacious media products for human ART: Compliance with safety, regulatory, and cultural norms

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This presentation describes the continuous ongoing research efforts to develop the SYNBIOS MEDIA which are a series of synthetic and chemically defined formulations of protein-free embryo culture, handling and cryopreservation media developed following >20 years of systematic research (first communicated in 1997 at the Fertility Society of Australia Scientific Conference - Ali, 1997; and published in 2000 - Ali et al, 2000, Human Reprod 15:145-156) specifically to address the safety, and compliance with both regulatory issues and cultural norms. Conventional gamete and embryo culture, handling and cryopreservation media utilize donor serum protein supplements, which carry (i) a theoretical risk of disease transmission through protein-bound pathogenic agents; (ii) harmful undeclared protein contaminants; and (iii) donor micro DNA/RNA strands, and (iv) is prone to batch to batch variation in their composition affecting the quality of embryos generated between batches. Proteins cannot be sterilized with absolute certainty. The synthetic SYNBIOS MEDIA are devoid of added serum proteins making it among the safest media for both human and animal application with no (i) no pathogenic agents and thus no disease transmission, (ii) no undeclared harmful proteins contaminants, (iii) no donor micro DNA/RNA contaminants preserving the genetic purity of the embryo, and (iv) with no batch to batch variation; the latter ensures the quality of embryos generated between batches are maintained. It also complies with the cultural norms and lifestyle of many religions and beliefs. The synthetic SYNBIOS MEDIA products do not contain donor DNA/RNA because it is devoid of donor serum proteins. This attribute eliminates the risk of crossover of the embryonic genome with third party genetic material ensuring that embryos generated during ART treatment retain their two-parent genetic constitution thereby preserving the purity of lineage of the progeny, making it Halal-compliant and Halal-certified human embryo media. The efficacy of synthetic SYNBIOS MEDIA is similar to currently available media. The synthetic SYNBIOS MEDIA protein-free embryo culture media can be frozen-stored for up to 24 months without loss of efficacy. Freezing enables longer shelf life making SYNBIOS MEDIA embryo culture and handling media are thus less wasteful and economical for users.