

# Preface

IVF techniques have given embryologists the extraordinary possibility of exploring the first events which preside at the beginning of a human life. The evaluation of embryo viability in clinical IVF relies on morphological criteria which are assessed by light microscopy. Blastomere number and size, cytoplasmic appearance, presence of fragments in the perivitelline space, and cleavage rate in relation to the time frame of development are the most important non-invasive parameters to evaluate embryonic competence. However, what we define as morphologically 'abnormal' may only represent different physiological aspects of oocyte and embryo development. Conversely, a 'normal' appearance is not necessarily synonymous with viability. As a consequence, it is possible that the limited efficiency of IVF techniques could be partially due to our poor ability to identify a viable embryo.

This atlas was born within the Special Interest Group of Embryology as a collection of images representing various aspects of oocyte and embryo development. The photographic material has been volunteered by embryologists who are members of the European Society of Human Reproduction and Embryology (ESHRE) with the aim of providing information on human oocyte, zygote and embryo development for anyone who is interested in assisted reproduction. Extensions to conventional techniques have been introduced, including embryo cryopreservation, assisted hatching and preimplantation genetic diagnosis. When available, novel approaches

applied to reproductive biology, e.g. confocal or scanning electron microscopy have been included in order to make the atlas a valuable tool, not only for students, but also for teachers and researchers in the field.

The images shown in this atlas were selected principally because of their excellent quality. Although not all aspects of oocyte and embryo development are covered, the major features are presented.

Only a few references, from the many available, have been selected. In some cases, reviews instead of original papers have been cited and, therefore, some excellent and innovative articles have been omitted, and we apologise to their authors for this.

The editors wish to thank Geraldine Hartshorne for reading the text. Her generous and expert input significantly improved this volume. We would also like to thank all those who contributed photographic material; unfortunately it was not possible to have room in the atlas to include all the excellent material submitted.

The editors would like to thank the members of the Human Reproduction team who have worked on the production of the Atlas with special thanks to Penny James.

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