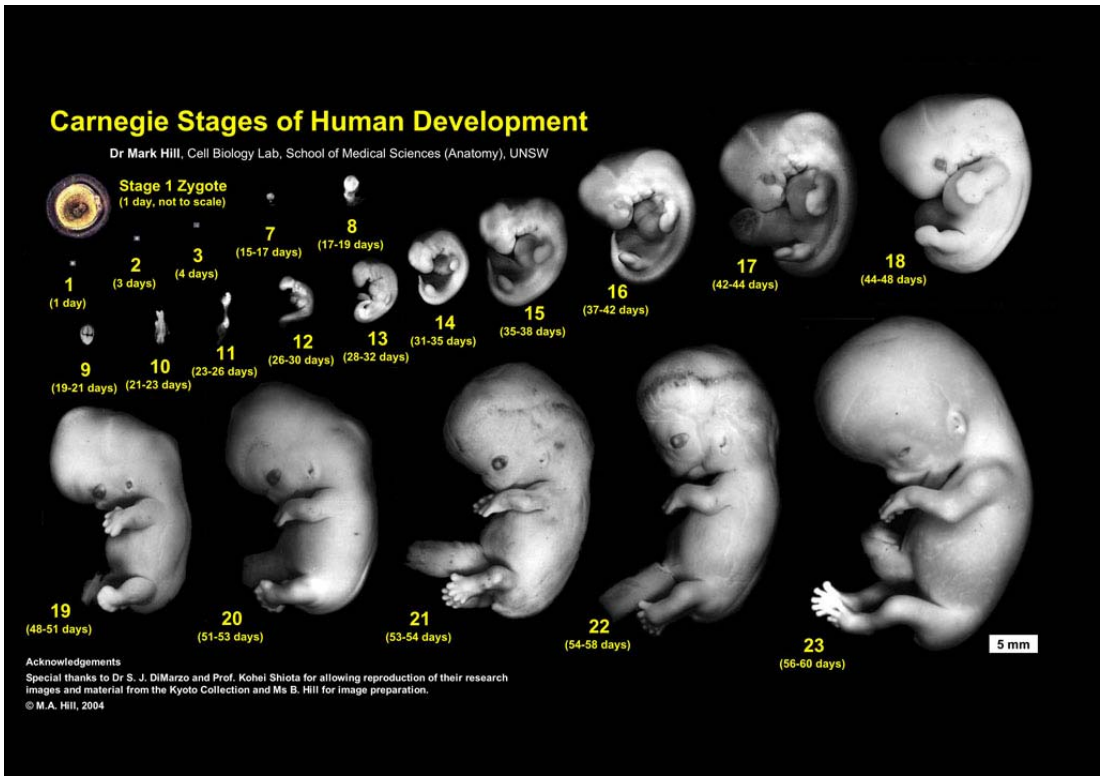
Practical 7: Embryology: implantation to 8 weeks

Principal Teacher: Dr Mark Hill

Gametes	Fertilization	Blastocyst	**Implantation**	**Embryo**	Fetus
Menstrual Cycle			Placenta and Fetal Membranes		



Human Embryo Development (Carnegie stage 1 to 23, day 1 to 60 days)

Aim:

Understand key events in development of the human embryo during the first trimester.

Key Concepts:

Adplantation, implantation, uterine changes, early placentation syncitiotrophoblast, cytotrophoblast, embryoblast, bilaminar embryo, gastrulation, trilaminar embryo, neuralation, organogenesis, ectoderm, mesoderm, endoderm, abnormalities.

Key Reading:

1. **Larsen's Human Embryology** Chapter 3, 4 and 5.
2. **The Developing Human: Clinically Oriented Embryology** Chapter 4 and 5.

Online Resource:

Online resource for this section is **UNSW Embryology** (http://php.med.unsw.edu.au/embryology).

http://php.med.unsw.edu.au/embryology/index.php?title=BGDA_Practical_-_Implantation_to_8_Weeks

Introduction

The first trimester covers mainly the human embryonic period (first 8 weeks) and is the time of major organogenesis. Development is divided into stages based on the external and internal morphological development of the embryo, and is not directly dependent on either age or size.

This class will cover the period from implantation (week 2) through to the end of the embryonic period (week 8). There are many simultaneous events occurring throughout the embryo during this time and it is important in this class to gain only a broad overview to the key events. This will be done through the online materials you will work through in the practical.

Clinically, the first trimester is also an important time to consider patient history (genetic background, patient lifestyle, reproductive problems), maternal health and early diagnostic techniques.

Notes

1. All events that occur in the first 8 weeks cannot be covered in depth in today's two hour class.
2. All practical material is available online and content is permanently available through the web, as are additional resources.
3. Some of the later events will be revised in the Fetal class (Practical 11) so mainly focus on the earlier events.
4. There are many new terms introduced in the class. Either write down, or Cut n Paste into electronic documents, the terms and their definitions using the linked glossary (A-Z found at the bottom of each page) or the search window.
5. All timings are only approximate and refer to embryonic days from fertilization not clinical days from Last Menstrual Period (LMP).
6. Consider the maternal changes (not covered in this class) that also occur during this period.
7. Fill in the blank table on the next page to help your understanding by constructing a timeline as you go through today's class of changes in stage, size and key events based upon the material covered in the class. Use arrows for ongoing events.

Terms

Embryonic Timeline

All timings and sizes are only approximate and refer to embryonic days after fertilization not clinical days, which are calculated from the Last Menstrual Period (LMP). The difference is approximately +2 weeks, embryonic week 2 = clinical week 4.

Week/Days Stages	**Size (mm)**	**Events**
Week 2 day 8 to 14		
Week 3 day 15 to 21		
Week 4 day 22 to 28		
Week 5 day 29 to 35		
Week 6 day 36 to 42		
Week 7 day 43 to 49		
Week 8 day 50 to 56		