Hanabusa IVF®
4910 Directors Place Suite 150
San Diego, CA 92121
858-480-5400

Understanding Your Embryology Updates

This guide explains what happens on the day of your egg retrieval and during each day of embryo development, as well as how to understand the terms and grades in your embryology report.

RETRIEVAL DAY

DAY 0

DAY 0 – Egg Retrieval and Fertilization

On the day of your egg retrieval, each egg is evaluated to determine its maturity.

Egg Maturity

- Mature eggs (MII): These eggs are ready for fertilization.
- Immature eggs (MI or GV):
  - MI: are immature but these can be injected (ICSI) on the same day.
  - GV: These cannot be fertilized immediately. They are kept in the incubator overnight to see if they mature by the next day.
    - If they reach maturity by Day 1, we perform Day-1 ICSI.
    - If they do not mature, they are discarded.
  - Embryos created by Day-1 ICSI will appear **one day behind** in a separate report because they were fertilized later.

Non-viable Eggs

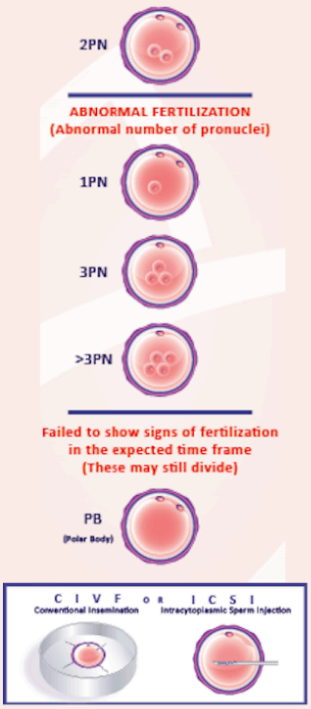
- Broken Zona (BZ), Degenerated (DEG), or Abnormal eggs: These eggs are not viable and must be discarded.

Fertilization Methods

1. **Conventional IVF (cIVF):** Eggs are placed in a dish with a pool of sperm, similar to natural fertilization. These eggs are not stripped of their surrounding cells, so we cannot confirm maturity at retrieval.
2. **ICSI:** A single sperm is injected directly into an egg

FERTILIZATION

DAY 1



DAY 1 – Checking for Fertilization

The day after fertilization, we check for signs that the egg and sperm successfully combined.

Normal vs. Abnormal Fertilization

- 2 pronuclei (2PN): This is normal fertilization, and what we expect to see.
- 1PN, 3PN, >2PN or 2 cells or more than 2 cells: These represent abnormal fertilization.
  - They are kept in culture for observation, but their chance of reaching the blastocyst stage is low.
  - If they do reach blastocyst, PGT-A testing is required to be considered for transfer.

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DAY 1 – Checking for Fertilization (continued)

0 PN (Polar Body (PB))

If only polar bodies are seen and no pronuclei:

- We continue monitoring them for 24–48 hours to see if they begin dividing (cleaving).
- If they cleave, they still have a low chance of reaching blastocyst stage.
- If they do not cleave, it means fertilization did not occur.

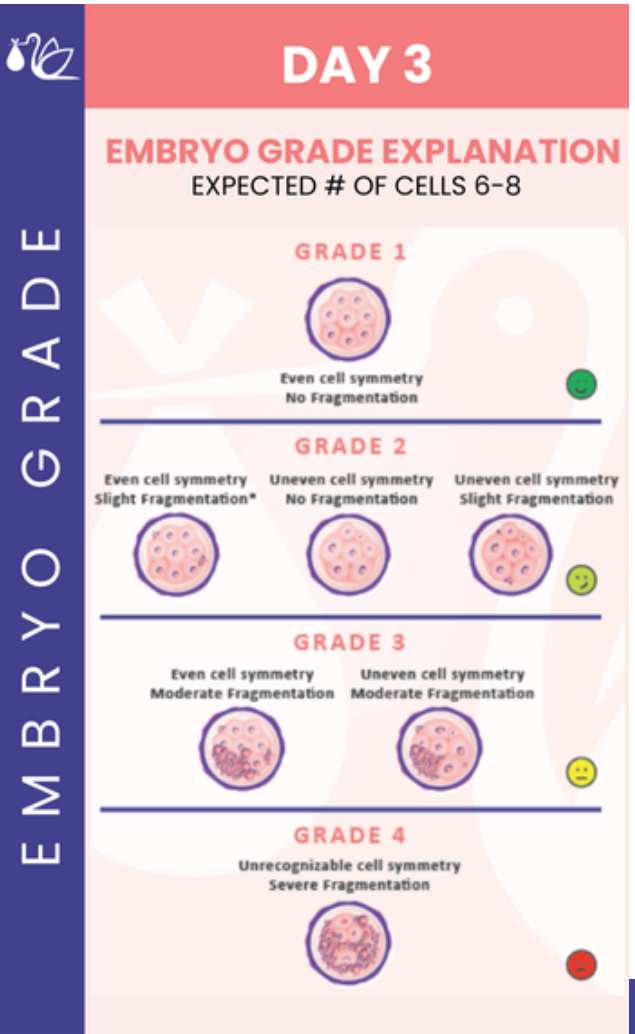
DAY 2 & DAY 4 – No Embryo Assessment

We do not check embryos these days to avoid disturbing their development.

However, this is what the embryo is expected to be doing:

- Day 2: Embryo typically reaches a 2-4 cell stage.
- Day 4: Embryo is compacting into a morula cavity.

Note: Day-2 evaluation may be performed only for embryos created via Day-1 ICSI.



DAY 3 – Cleavage Stage (Cell Division Stage)

On Day 3, embryos are evaluated based on cell number and quality.

Expected Cell Number

- A typical Day-3 embryo has 6–8 cells.
- Fewer than 6 cells: Lower likelihood of forming a blastocyst.
- More than 10 cells or morula (MOR): Developing faster than average, they may still form a blastocyst.

Fragmentation

Fragmentation refers to small, membrane-bound pieces of cytoplasm that separate from the embryo's cells (blastomeres) during early division.

These fragments:

- Do not contain nuclei
- Are considered by-products of uneven or abnormal cell division
- Can affect the embryo's developmental potential depending on the amount and distribution.

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DAY 3 – Cleavage Stage (Cell Division Stage) continued

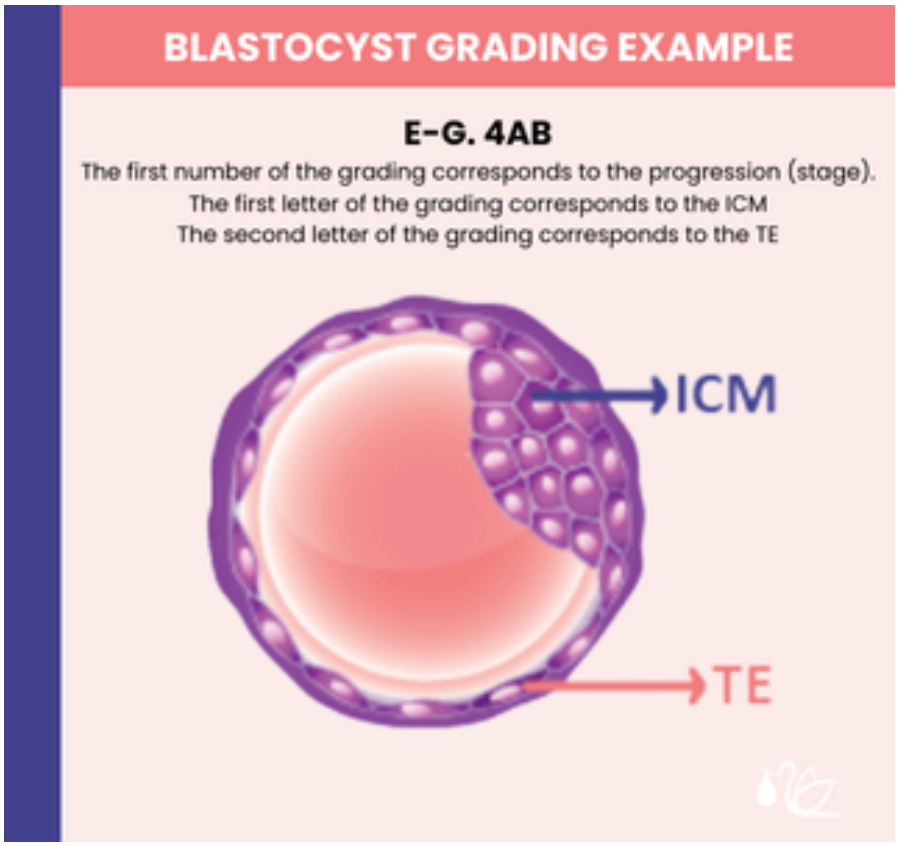
Embryo Quality Grades

- Grade 1: Excellent (even cells).
- Grade 2: Good (minor size differences).
- Grade 3: Below average.
- Grade 4: Poor quality.

Fragmentation Percentage Guidelines

- Highest chance of reaching blastocyst. (0% to 5%)
- Moderate chance. (6% to 10%)
- Low chance. (10%to >25%)
- Very Low (>26 to 50%)
- Lowest: >50

Embryos with fewer cells and or higher fragmentation have a lower chance of reaching the blastocyst stage.



DAY 5–7
Blastocyst Development

By Day 5 (and up to Day 7), embryos begin to form a fluid-filled cavity or reach the blastocyst stage.

A blastocyst contains two important cell groups:

- ICM (Inner Cell Mass): Becomes the fetus.
- TE (Trophectoderm): Becomes the placenta and supporting structures.

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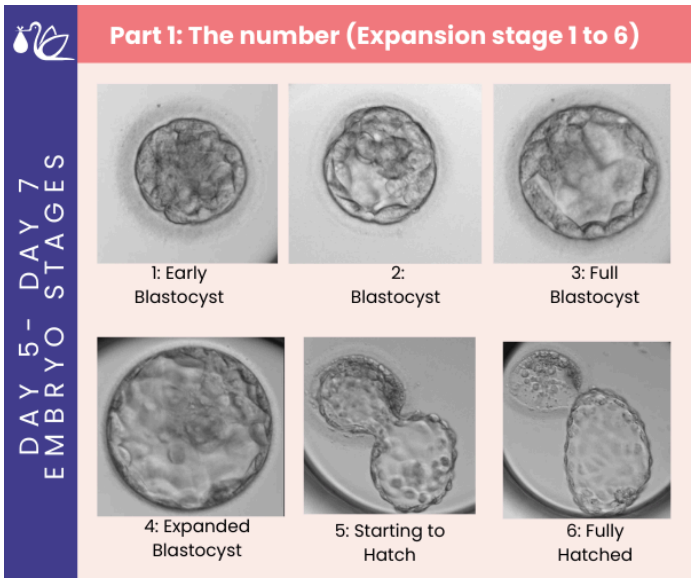
HOW TO READ A BLASTOCYST GRADE

A blastocyst grade has one number + two letters:

Example: 4BA

- 4 = how expanded the blastocyst is (its stage of development)
- B = quality of the ICM (Inner Cell Mass, the part that becomes the baby)
- A = quality of the TE (Trophectoderm, the part that becomes the placenta)



Part 1: The number (Expansion stage 1 to 6)

The number is mostly about timing and expansion, like a progress marker.

1. Early blastocyst (just starting to form a cavity)
2. Blastocyst (cavity is forming and growing)
3. Full blastocyst (cavity fills most of the embryo)
4. Expanded blastocyst (larger, shell is thinning)
5. Starting to hatch (beginning to come out of the shell)
6. Fully hatched (completely out of the shell)

Part 2: First letter (ICM quality A to D)

ICM = Inner Cell Mass

The first letter is about the cells that become the baby.

- A: Best looking (more cells, tightly grouped)
- B: Good/fair (moderate amount, somewhat less compact)
- C: Poor (fewer cells, less organized)
- D: Non-viable

Part 3: Second letter (TE quality A to D)

TE = Trophectoderm

The second letter is about the outer layer that helps form the placenta.

- A: Best looking (many cells, cohesive layer)
- B: Good/fair (moderate number, less uniform)
- C: Poor (fewer cells, uneven layer)
- D: Non-viable

Quick "decoder" examples

- 3AA = Full blastocyst, excellent ICM, excellent TE
- 4BA = Expanded blastocyst, good/fair ICM, excellent TE
- 5BC = Starting to hatch, good/fair ICM, poorer TE