

Working efficiently with annotations - *registering relevant events*

Annotations are recordings in time of events during embryo development. They constitute the base on which embryo evaluation can be performed using time-lapse monitoring in the IVF clinic.

The embryo developmental events that can be detected with time-lapse technology are immense. Events relevant for annotation ideally reflect embryonic potential in the specific clinical setting. Therefore it is important to define which events are relevant for the evaluation of embryos in your clinical setting.

It is entirely the clinic's decision what to annotate. Vitrolife recommends that a strategy for annotation is defined in the clinic. This facilitates consistency and efficiency in the processes of annotation and evaluation. This Technote outlines a suggested workflow and a basic annotation strategy that can be used as a starting point.

Creating an efficient workflow

Consistency in the annotation process throughout the clinic is the most important element for a meaningful comparison of embryos – both when comparing sibling embryos before transfer and when determining which variables reflect embryo potential.

Vitrolife proposes the below structure for an annotation strategy in a clinic starting up time-lapse and morphokinetic analysis. This strategy leads to an efficient workflow and comprises the needs for applying KIDScore models and basic morphology. Other annotation variables can easily be added according to clinic needs.



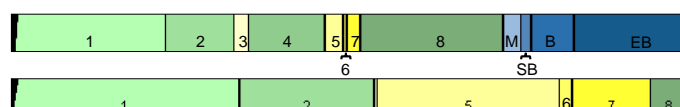
Immediate benefits of annotation

Annotations facilitate an immediate overview of the course of embryo development. Annotating mere cell divisions builds up the division chart in the EmbryoViewer software and following the below suggested basic strategy for annotation facilitates the application of KIDScore models.

The division chart should be regarded as a summary of embryo development without indications of specific timings. It gives an overview of the relative duration of embryonic stages and indicates if embryos stayed in an

intermediate stage for relatively longer time periods. KIDScore models and analysis of the division chart are immediate ways to evaluate and compare development of embryos within a cohort.

Learn more consistent annotation and KIDScore models in the Technotes “Consistent annotation for better evaluation – a guide on definitions for morphokinetics”, “KIDScore D3 decision support tool” and “KIDScore D5 decision support tool”.



Examples of division charts with annotation of blastomere divisions and post-compaction stages.

Top: Normal dividing embryo,

Bottom: Embryo resting abnormally long at intermediate cell stages and dividing rapidly from 2 to 5 cells.

A good start

It is important for all clinic procedures that the processes are designed in a way that minimizes workload while providing adequate information for appropriate evaluation.

The workflow and annotation strategy outlined here is a recommendation designed for an efficient daily procedure.

Time-lapse monitoring of embryos with a data storing function has the benefit of providing the basis for full flexibility in assessment and evaluation procedures as embryo development is continuously accessible.

The suggested workflow reflects the parameters needed for KIDScore assessment which is also generally informative.

Suggested workflow

Day 0
– or when convenient
PN check

Day of transfer
– or when convenient
Annotate only embryos that have reached the expected stage
Suggested basic strategy: tPNf, t2, t3, t4, t5, t8 include tB and TE for d5 culture
Evaluate embryos following clinic standards. When evaluating using KIDScore annotate additional variables only on top-scoring embryos to avoid unnecessary work.

Tips for efficient annotation

- Ensure alignment on annotation strategy between colleagues.

Avoid unnecessary work

- If good morphology embryos are available on day of transfer: focus annotation on those
- If top-scoring embryos are available: annotate additional variables only on those

Utilize flexibility

- Annotate a step of the way on the afternoon before transfer to save time on the day of transfer
- Use time-lapse sequence when assessing embryo morphology to ensure complete visualisation of each parameter

