**Additional file 1: Table S1.** Summary of literature review and our study about morula stage.

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| --- | --- | --- | --- | --- |
| Authors and publication year | Studied morulas and stages | Main outcome measurement | Strengths | Limitations |
| Fabozzi *et al.*, 2016 [3] | Day 4 morulas in fresh cycles | * BFR/top-quality BFR per morula category | Better BFR prediction at the morula stage with respect to day 3. | * No data on FET cycles * No data on delayed morulas |
| Ivec *et al.*, 2011 [9] | Day 5 morulas in fresh cycles | * BFR/optimal BFR per morula grade | Analyzed the growth potential of delayed and/or incomplete compaction morulas. | * No data on FET cycles * No differences of BFR among day 5 grade I/II/III morulas |
| Haas *et al.*,  2019 [4] | Day 5 morulas in fresh cycles | * BFR (blastulation rate) | Large number of embryos. | * No morulas grading * No data on FET cycles |
| Tao *et al.*, 2004 [10] | Day 4 morulas in  FET cycles | * Post-thaw morula survival rate * Pregnancy rates | Reported the survival rate of post-thaw morulas, its morphological alterations during freezing-thawing procedures and outcomes after FET. | * No data for delayed morulas * No information about BFR of the morulas |
| Tsai *et al.,*  2019 | Day 5/6 morulas in FET cycles | * Post-thaw morula survival rate * BFR/top-quality BFR per morula grade * Pregnancy rate | Reported the growth potential of delayed and/or incomplete compaction morulas in FET cycles. | * Further studies may be required to compare the BFRs of day 5/6 morulas in fresh and in FET cycles. |

BFR, blastocyst formation rate; FET, frozen embryo transfer.