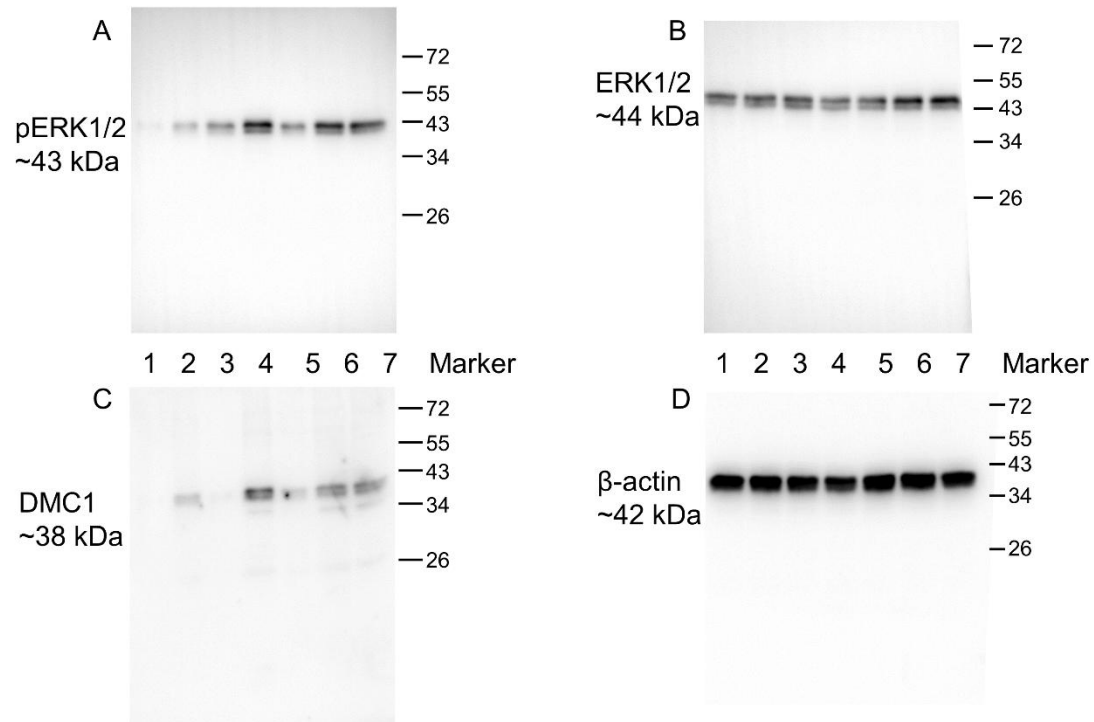


Supplementary Materials



Supplementary Figure S1. Western blot detection of pERK1/2 (A), ERK1/2 (B), DMC1 (C), and β-actin (D) in cells in 3D culture system after 4 weeks of exposure to different stimuli (original images in Figure 8A). Lane 1: cells cultured in 3D conditions; lane 2: 3D+Hor; lane 3: 3D+Mel; lane 4: 3D+Hor+Mel; lane 5: 3D+Hor+Mel+Luz; lane 6: 3D+Hor+Mel+4PP; and lane 7: 3D+Hor+2-Iod. Size of target bands is indicated.

Supplementary Table S1. Primer information.

Primer	Sequence (5'–3')
<i>actin</i> F698	GACAGAGCGTGGCTACTCATTACACC
<i>actin</i> R926	GGTTTCATGGATACCGCAGGATTCC
<i>oct4</i> F	GATGAGGAAGAAGTGGGAGGAGAC
<i>oct4</i> R	CGTGCATGCAGTGTCAAATCAAGTGG
<i>plzf</i> F545	GGAGGACTTGGACGACCTGTTGTACGCCGC
<i>plzf</i> R759	GGGACTCTGGTCGACCATGCCGGACAT
<i>ly75</i> F573	GGGACTATCTGTTGCTGATGGCAAAGT
<i>ly75</i> R790	GTCATAGTCAGAAGAGGTGGCACACC
<i>Vasa</i> F841	AGGCAGCACTGTGTGAGTCTTTGAA

<i>Vasa</i> R1062	TCGGAGCCACTATAATGGCCTC
<i>dnd</i> F929	GATTCTGCAGGTGTTCCGTGAACTGGTAGAGG
<i>dnd</i> R1103	AGCTCGGCTTTCCTGATGACTGCCACCTG
<i>piwi1</i> F1519	GCGAGCACACCAAAGTGAAGACC
<i>piwi1</i> R1715	GGCCCAGTCAGCAGACCAAGGTCATACTC
<i>sycp3</i> F150	CATGTGGAGGATAAGTCTGATAAAGCG
<i>sycp3</i> R370	GTTCTTGGTCAAAGCCTCCAGACG
<i>rec8</i> F316	CCAGCTGCAGTATGGAGTGGTGGT
<i>rec8</i> R473	GTTATCAGGAAGATCCAATGCCAGCC
<i>dmc1</i> F381	GGGCATACAGATGACTACACGGAAA
<i>dmc1</i> R586	CTCAATGCCTCCACCCAACAG
<i>acrosin</i> F447	AATGACCTCTGACAATGATATCGCTCTCC
<i>acrosin</i> R660	CTTCTGTCAATCAGCTCCACTTCTGC
<i>fshr</i> F1037	GAGTTGGTGGTACTGGACATCTCCC
<i>fshr</i> R1199	GCAGTGGGAGGGGTACGTCAGC
<i>sox9</i> F1053	GGAGGGTACCAGCCGCCAGCTC
<i>sox9</i> R1226	TGCCATAGCTGTTGGTGTAAGCGG
<i>amh</i> F708	GGAGACACAGGAAGCAACATCAG
<i>amh</i> R871	CAGTGACTCCAGGTTGAGTAGT
<i>mt1</i> F762	CTACTGCTACATCTGTCACAGCC
<i>mt1</i> R906	CTAGGGTCGTACTGCAAGGAACC
<i>mt2</i> F488	GGCTCCTCACAGTAGTGGCCATA
<i>mt2</i> R623	ATTCGCAGATAACAGAAGGTGACCAC
<i>mt3</i> F525	CCATCGTGGTTGACATCCTTGGCA
<i>mt3</i> R647	CGCCACCACCAGGTCAGCCAC
<i>RORa</i> F959	GGAGACAAATCATCAGGCATCCATTATGG
<i>RORa</i> R1101	GGTTGCGGCTGGTGCGGTCGATC
<i>cdk1</i> F241	GCTGTGAGAGAGGTGTCCTTGCTGC
<i>cdk1</i> R390	CCAGATGGGATCGAGTCCAGGTAC
<i>cdk2</i> F330	CTGCAGCTAATCTGGCCACATTGC

<i>cdk2</i> R482	CTTCCCAAGCTCCTCAATAATGGCC
<i>cdk4</i> F761	CACGTGGACCAAGACCTGAAGACG
<i>cdk4</i> R911	CTCAGGCTTCAGATCTCGGTGG
<i>cyclin A</i> F799	CTCACTTACCTGGGCTGCACCTC
<i>cyclin A</i> R968	CAGCTCCAACAGAAGTCTTGCGTC
<i>cyclin B</i> F688	CTCATCGACTGGCTCGTCCAGGTG
<i>cyclin B</i> R825	GTCACTCCGACCAGCTGCAGCTGC
<i>cyclin D</i> F605	CTACACGGACAACCTCGGTCCAGCC
<i>cyclin D</i> R743	GGGCAGATCTTCAGCTTGGACAGG
<i>cyclin E</i> F1226	CATGGCTGGACAAGGCCTACTC
<i>cyclin E</i> R1344	CCCTGATCGTCACTCTTCTCACTG
<i>pcna</i> F179	GGTGCTGGAGGCTCTGAAGGA
<i>pcna</i> R343	CCATCGCCAGGTTTCGGTCG
<i>bcl2</i> F608	CCTGCAGGATTCAAGCAACGAG
<i>bcl2</i> R742	CGTCCCGGAACACCTCATCC
<i>caspase3</i> F296	CAGGCATGAACCAGCGAAATGG
<i>caspase3</i> R488	CTCCATGACTCAACAGAACACAGATG

Supplementary Movie S1. Video of motile four-eyed sleeper sperm in cell supernatant at 4 WAC in 3D model.