

## Description of Additional Supplementary Files

**File Name:** Supplementary Data 1

**Description:** The source data behind the graphs in the paper.

**File Name:** Supplementary Video 1

**Description:** The motive video of sperm with relatively low VCL base level incubated in BWW medium for 10 min.

**File Name:** Supplementary Video 2

**Description:** The motive video of sperm with relatively low VCL base level incubated in BWW medium with Bay117082 for 10 min.

**File Name:** Supplementary Video 3

**Description:** The motive video of sperm with relatively high VCL base level incubated in BWW medium for 10 min.

**File Name:** Supplementary Video 4

**Description:** The motive video of sperm with relatively high VCL base level incubated in BWW medium with Bay117082 for 10 min.