

### Description of Additional Supplementary Files

**Supplementary Movie 1:** Timing-controlled division of A:Bdroplet at  $c_{ERH} = 1.25 \times 10^{-2}$  U/ $\mu$ L and  $c_{A\tilde{B}} = 1.5$ .

**Supplementary Movie 2:** Timing-controlled division of A:Bdroplet at  $c_{ERH} = 2.5 \times 10^{-2}$  U/ $\mu$ L and  $c_{A\tilde{B}} = 1.5$ .

**Supplementary Movie 3:** Timing-controlled division of A:Bdroplet at  $c_{ERH} = 5.0 \times 10^{-2}$  U/ $\mu$ L and  $c_{A\tilde{B}} = 1.5$ .

**Supplementary Movie 4:** Timing-controlled division of A:Bdroplet at  $c_{ERH} = 2.5 \times 10^{-2}$  U/ $\mu$ L and  $c_{A\tilde{B}} = 1.0$ .

**Supplementary Movie 5:** Timing-controlled division of A:Bdroplet at  $c_{ERH} = 2.5 \times 10^{-2}$  U/ $\mu$ L and  $c_{A\tilde{B}} = 2.0$ .

**Supplementary Movie 6:** Pathway-controlled division of C·A·B-droplets via Pathway 1 (RNA concentration condition (i) in Figure 7a).

**Supplementary Movie 7:** Pathway-controlled division of C·A·B-droplets via Pathway 2 (RNA concentration condition (v) in Figure 7a).

**Supplementary Movie 8:** Pathway-controlled division of C·A·B-droplets at RNA concentration condition (ii) in Figure 7a.

**Supplementary Movie 9:** Pathway-controlled division of C·A·B-droplets at RNA concentration condition (iii) in Figure 7a.

**Supplementary Movie 10:** Pathway-controlled division of C·A·B-droplets at RNA concentration condition (iv) in Figure 7a.