

## Supporting Information

### Nose-to-brain drug delivery by HS15 micelles for Brain Targeting of insoluble drug

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**Table S1** The particle sizes of HS15-AGO respectively with CSF and PBS solution.

	In Cerebrospinal Fluid (CSF) (nm)			In Phosphate buffered saline (PBS) (nm)		
1.0	13.31	12.92	13.02	14.17	13.90	13.69
2.0	13.34	13.94	14.00	14.05	13.76	14.89
6.0	14.05	13.76	14.89	14.82	14.04	14.60
10.0	16.21	15.43	14.78	14.17	17.85	14.17
14.0	17.85	14.83	15.29	15.81	14.99	15.40
24.0	19.13	19.36	16.17	16.63	16.06	15.35

**Table S2** The vitro release data of HS15-AGO in NF and CSF.

	In Nasal Fluid (NF) (%)			In Cerebrospinal Fluid (CSF) (%)		
0.5 h	41.0	43.4	39.5	38.9	36.8	39.4
1.0 h	61.0	60.8	58.4	51.0	50.2	52.4
2.0 h	71.8	72.6	70.6	72.9	73.3	75.1
4.0 h	93.7	95.0	93.7	91.7	91.6	93.2
6.0 h	96.2	100.3	97.3	96.3	96.1	97.6
8.0 h	99.1	98.3	95.8	102.5	102.3	104.0
10.0 h	101.9	101.2	99.5	100.9	100.0	102.7

**Table S3** The vitro release data of AGO in NF and CSF.

	In Nasal Fluid (NF) (%)			In Cerebrospinal Fluid (CSF)(%)		
0.5 h	53.1	54.1	49.9	45.7	44.5	44.8
1.0 h	67.7	66.9	68.5	70.2	71.4	68.2
2.0 h	97.9	96.1	99.6	94.6	96.2	92.1
4.0 h	102.3	101.4	102.4	102.9	98.3	96.5
6.0 h	103.0	101.7	105.3	105.6	104.6	102.2
8.0 h	104.6	100.6	106.0	109.5	108.7	107.5
10.0 h	107.2	102.9	108.8	110.4	109.7	108.8