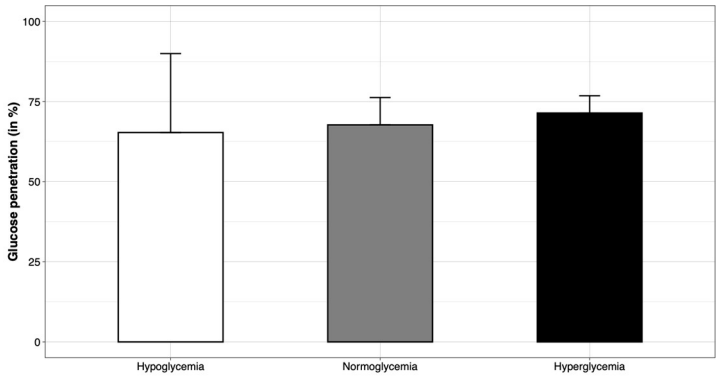

Supplementary Figure S1. Glucose penetration through the blood-brain barrier model used in the present study assessed by colorimetric assay in three different glycemic backgrounds (hypo-, normo- and hyperglycemia, resulting from applying 2.2 mM, 5 mM and 25 mM glucose to the microvascular compartment, respectively).
Analogically to the two-cell blood-brain barrier (BBB) model used in this study, consisting of the astrocyte brain compartment (BC) and the endothelial microvascular compartment (MC), the endothelial MC and astrocyte-free glucose-free BC were maintained for 24 hours and subsequently for 24 hours following glucose addition to the MC in concentrations corresponding to hypo-, normo- and hyperglycemia. At this time (corresponding to the experimental time point 0h) glucose concentration in the BC was measured using colorimetric assay (for details see section *4.5*) and the ratio of glucose penetration through the BBB was calculated. Mean values of glucose penetration ratio (in %) and standard errors are presented. There were no statistically significant differences in the ratio of glucose penetration through the BBB between different glycemic groups.

Supplementary Table S1. Statistical measures of central tendency and variability for the sirtuin 1 concentration data. Mean values (Mean) and standard deviations (SD) for all the data on sirtuin 1 (SIRT1) concentration, presented in Figures 2, 4-9. As the data for time point 0h were pooled across the experiments, at this time point n=12 for each glycemic group. The data for time point 12h were pooled for untreated with RSV-treated and for LPS-treated with LPS-RSV-treated groups, thus at this time point n=6 for each glycemic group. For all other time points and conditions n=3.

Glycemic background	Time point	untreated (⌀)	+LPS	+RSV	+LPS +RSV
Hypoglycemia	0h	Mean: 211.000 SD: 120.032	Mean: 211.000 SD: 120.032	Mean: 211.000 SD: 120.032	Mean: 211.000 SD: 120.032
	12h	Mean: 185.000 SD: 125.709	Mean: 200.167 SD: 237.981	Mean: 185.000 SD: 125.709	Mean: 200.167 SD: 237.981
	24h	Mean: 317.000 SD: 89.163	Mean: 173.500 SD: 10.607	Mean: 254.000 SD: 199.404	Mean: 191.000 SD: 188.090
	36h	Mean: 364.000 SD: 57.000	Mean: 13.000 SD: 8.000	Mean: 326.500 SD: 160.450	Mean: 86.500 SD: 86.974
Normoglycemia	0h	Mean: 197.375 SD: 123.628	Mean: 197.375 SD: 123.628	Mean: 197.375 SD: 123.628	Mean: 197.375 SD: 123.628
	12h	Mean: 214.667 SD: 144.119	Mean: 224.250 SD: 41.153	Mean: 214.667 SD: 144.119	Mean: 224.250 SD: 41.153
	24h	Mean: 190.667 SD: 68.857	Mean: 152.333 SD: 124.001	Mean: 240.333 SD: 154.730	Mean: 189.000 SD: 55.154
	36h	Mean: 181.000 SD: 53.703	Mean: 43.000 SD: 21.213	Mean: 266.250 SD: 148.744	Mean: 144.500 SD: 94.045
Hyperglycemia	0h	Mean: 206.125 SD:150.088	Mean: 206.125 SD:150.088	Mean: 206.125 SD:150.088	Mean: 206.125 SD:150.088
	12h	Mean: 144.250 SD: 75.769	Mean: 195.000 SD: 66.106	Mean: 144.250 SD: 75.769	Mean: 195.000 SD: 66.106
	24h	Mean: 132.500 SD: 88.138	Mean: 13.000 SD: 8.000	Mean: 208.500 SD: 38.891	Mean: 32.000 SD: 15.556
	36h	Mean: 57.667 SD: 25.502	Mean: 43.000 SD: 18.000	Mean: 166.000 SD: 12.728	Mean: 113.500 SD: 48.790