Supplementary Material - Optogenetic induction of peri-infarct spreading depolarization in the ET-1 rat model of focal cortical ischemia (Bazzigaluppi, Mester, Joo, Weisspapir, Dorr, Koletar, Beckett, Khosravani, Carlen and Stefanovic)

Supplementary table 1. Vessels Scanned per animal

| Subject_ID | Number of scanned vessel | Arterioles | Venules |
|------------|--------------------------|------------|---------|
| 1          | 5                        | 3          | 2       |
| 2          | 3                        | 2          | 1       |
| 3          | 4                        | 2          | 2       |
| 4          | 5                        | 3          | 2       |
| 5          | 5                        | 3          | 2       |
| 6          | 4                        | 2          | 2       |

Supplementary table 2. Vessel-wise $V_{RBC}$ analysis

| Subject Number | Vessel Type        | Drop in $V_{RBC}$ [%] | Time of reperfusion [min] | Average $V_{RBC}$ after reperfusion [%] |
|----------------|--------------------|-----------------------|---------------------------|----------------------------------------|
| 1              | proximal arteriole | -70.43                | 35                        | -51.23                                 |
| 1              | distal arteriole   | -76.04                | 21                        | -35.88                                 |
| 1              | proximal venule    | -63.75                | 51                        | -0.91                                  |
| 1              | distal venule      | -95.32                | 30                        | -34.82                                 |
| 1              | proximal arteriole | -94.35                | 32                        | -37.68                                 |
| 2              | proximal arteriole | -74.63                | 52                        | -75.86                                 |
| 2              | proximal venule    | -98.16                | 54                        | -100                                   |
| 2              | distal arteriole   | 1.94                  | 15                        | -27.27                                 |
| 3              | distal arteriole   | -100                  | NaN                       | NaN                                    |
| 3              | distal venule      | -96.92                | NaN                       | NaN                                    |
| 3              | proximal arteriole | -100                  | NaN                       | NaN                                    |
| 3              | proximal venule    | -93.31                | NaN                       | NaN                                    |
| 4              | proximal arteriole | -45.73                | 57                        | -76.26                                 |
| 4              | proximal venule    | -46.59                | 86                        | -43.61                                 |
| 4              | distal arteriole   | -51.36                | 76                        | -77.92                                 |
| 4              | distal venule      | -100                  | 59                        | -73.37                                 |
| 4              | distal arteriole   | -19.25                | 77                        | -29.90                                 |
| 5              | proximal arteriole | -45.95                | 40                        | -50.85                                 |
| 5              | distal arteriole   | -38.95                | 14                        | -40.92                                 |
| 5              | distal venule      | -31.88                | 33                        | -44.55                                 |
| 5              | proximal venule    | -40.80                | 48                        | -76.31                                 |
| 5              | distal arteriole   | 2.95                  | 14                        | -8.43                                  |
Supplementary Figure 1: Band-wise progression of neuronal power changes as “baseline”, “ischemia” and “early spontaneous reperfusion”

Supplementary Figure 2: Optostimulation induced SDs
Supplementary Figure 3: Spontaneous PCRPs
**Supplementary Figure 4:**

Ai) Coronal slice of representative rat transfected with AAV2.hSyn.ChR2(H134R)-eYFP.WPRE.hGH (#26973, Addgene USA). GFAP in purple and eYFP in green. The area at the asterisk is enlarged in Aii (GFAP only) and Aiii (GFAP and eYFP).

**Supplementary Figure 5:**

Supplementary Figure 5: A separate group of three male rats was dedicated to the study of cortical CBF from the peri-injected area by Laser Doppler Flowmetry (LDF100C, Biopac).