SUPPLEMENTAL MATERIAL

Stalled Cerebral Capillary Blood Flow in Mouse Models of Essential Thrombocythemia and Polycythemia Vera Revealed by In Vivo Two-Photon Imaging

Figure S1. Leukocyte and platelet counts did not predict cortical capillary stall rate.

To test whether leukocytosis or thrombocytosis influence the rate of capillary stalls in murine models of mixed MPN, ET, PV or secondary erythrocytosis, we investigated the relationship between leukocyte and platelet counts and the rate of capillary stalls. Stall rate was dependent on neither leukocytosis (A) nor thrombocytosis (B). Shaded areas represent normal leukocyte and platelet counts in C57/Bl6 mice [1]. Previous clinical studies have had mixed findings on the influence of leukocyte and platelet counts on cardiovascular events [2-5].
Figure S2. Capillary stalls associated with leukocyte plugs, platelet aggregates, stagnant RBCs, and empty vessels in MPN mouse models reestablished blood flow at unequal rates.

Our data suggests that cortical capillary stalls in MPN mouse models are long-lived. We further scrutinized the stall survival time in stalled capillaries where (A) leukocyte plugs, (B) platelet aggregates, (C) only RBCs, or (D) only blood plasma (i.e. no blood cells) were present. Individual stalled capillaries of all causes were monitored until blood flow reestablished, or for ~2 hours, whichever was first. The proportion of persistent leukocyte plugs, platelet aggregates, RBC stalls, and empty vessels decay over time at unequal rates in BMT mixed MPN, BMT ET, Epo-inj, and BMT PV mice. Notably, in the BMT ET group, over 50% of the stalls caused by platelet aggregates resolved quickly in the first 10 minutes. Because platelet plugs caused about half of the stalled capillaries in BMT ET mice, this fast resolution was reflected the shorter persistence of all stall types over time (see Figure 3D).
Figure S3. Capillary density in ET, PV, mixed MPN, and secondary erythrocytosis mouse models.

(A) Density of capillary segments shows a large variability among animals within each group but no significant difference between groups.
**Supplemental Tables**

**Table S1. Number of Subjects in Each Measurement**

<table>
<thead>
<tr>
<th></th>
<th>Stall</th>
<th>Stall Type</th>
<th>Stall Persistence</th>
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<th>Speed</th>
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</table>

Multiple types of measurements were frequently made in the same animal

(e.g. rate of capillary stalling, stall type, stall persistence)
Supplemental References


Legends for the Video Files

Video S1. 2PEF image stack from a BMT PV mouse. Capillaries with stalled blood flow are circled, with different colors indicating different causes of capillary stalls: stationary RBCs (red), platelet aggregate (green), leukocyte plug (blue), empty (white). The field of view of the image stack is 302 µm and the image frames are spaced by 1 µm along the z-axis.