### A - Top Diseases & Functions

<table>
<thead>
<tr>
<th>Diseases and Bio Functions</th>
<th>z-score Nx</th>
<th>z-score Hx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulation of granulocytes</td>
<td>2.26</td>
<td>0.00</td>
</tr>
<tr>
<td>Activation of leukocytes</td>
<td>2.10</td>
<td>0.91</td>
</tr>
<tr>
<td>Activation of myeloid cells</td>
<td>2.26</td>
<td>1.06</td>
</tr>
<tr>
<td>Cancer</td>
<td>2.03</td>
<td>2.03</td>
</tr>
<tr>
<td>Cell death of cancer cells</td>
<td>0.00</td>
<td>2.38</td>
</tr>
<tr>
<td>Chemotaxis of antigen presenting cells</td>
<td>-0.37</td>
<td>-2.05</td>
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<tr>
<td>Digestive organ tumor</td>
<td>1.40</td>
<td>3.55</td>
</tr>
<tr>
<td>Efflux of lipid</td>
<td>0.00</td>
<td>-2.04</td>
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<tr>
<td>Epithelial neoplasia</td>
<td>1.14</td>
<td>2.16</td>
</tr>
<tr>
<td>Epithelial-mesenchymal transition of tumor cell lines</td>
<td>0.00</td>
<td>2.03</td>
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<tr>
<td>Fibrosis</td>
<td>2.00</td>
<td>0.49</td>
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<tr>
<td>Flux of lipid</td>
<td>0.00</td>
<td>-2.22</td>
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<tr>
<td>Neoplasia of carcinoma cell lines</td>
<td>0.00</td>
<td>2.43</td>
</tr>
<tr>
<td>Neuromuscular disease</td>
<td>-1.66</td>
<td>-2.21</td>
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<tr>
<td>Polarization of leukocytes</td>
<td>2.01</td>
<td>0.00</td>
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<tr>
<td>Quantity of bone marrow cells</td>
<td>0.00</td>
<td>-2.02</td>
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<tr>
<td>Recruitment of leukocytes</td>
<td>-0.68</td>
<td>-2.27</td>
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<tr>
<td>Response of antigen presenting cells</td>
<td>-2.13</td>
<td>0.00</td>
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<tr>
<td>Signaling of cells</td>
<td>-2.07</td>
<td>0.00</td>
</tr>
<tr>
<td>Signaling of tumor cell lines</td>
<td>-2.22</td>
<td>0.00</td>
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<tr>
<td>Transmigration of cells</td>
<td>0.00</td>
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### B - Top Canonical pathways

<table>
<thead>
<tr>
<th>Canonical Pathway</th>
<th>p-val Nx</th>
<th>p-val Hx</th>
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<tbody>
<tr>
<td>Acute Phase Response Signaling</td>
<td>1.05</td>
<td>2.22</td>
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<tr>
<td>Agranulocyte Adhesion and Diapedesis</td>
<td>3.41</td>
<td>1.80</td>
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<tr>
<td>Atherosclerosis Signaling</td>
<td>3.54</td>
<td>1.35</td>
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<tr>
<td>Bladder Cancer Signaling</td>
<td>2.71</td>
<td>1.63</td>
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<tr>
<td>Dopamine Degradation</td>
<td>2.40</td>
<td>0.58</td>
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<tr>
<td>Ethanol Degradation IV</td>
<td>2.58</td>
<td>1.24</td>
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<tr>
<td>Fatty Acid alpha oxidation</td>
<td>3.02</td>
<td>0.82</td>
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<tr>
<td>Granulocyte Adhesion and Diapedesis</td>
<td>4.86</td>
<td>3.27</td>
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<tr>
<td>Guanine and Guanosine Salvage I</td>
<td>1.18</td>
<td>2.61</td>
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<tr>
<td>Guanosine Nucleotides Degradation III</td>
<td>0.47</td>
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<tr>
<td>HIF1 alpha Signaling</td>
<td>1.77</td>
<td>2.03</td>
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<tr>
<td>Histamine Degradation</td>
<td>3.15</td>
<td>0.87</td>
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<tr>
<td>Inhibition of Matrix Metalloproteases</td>
<td>2.88</td>
<td>2.04</td>
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<tr>
<td>Leukocyte Extravasation Signaling</td>
<td>2.31</td>
<td>0.82</td>
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<tr>
<td>LPS/IL-1 Mediated Inhibition of RXR Function</td>
<td>3.85</td>
<td>1.13</td>
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<tr>
<td>LXR/RXR Activation</td>
<td>2.44</td>
<td>2.11</td>
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<tr>
<td>Neuroprotective Role of THOP1 in Alzheimer's Disease</td>
<td>2.18</td>
<td>0.99</td>
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<tr>
<td>Oxidative Ethanol Degradation III</td>
<td>2.78</td>
<td>1.38</td>
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<tr>
<td>Purine Nucleotides Degradation II (Aerobic)</td>
<td>0.36</td>
<td>2.07</td>
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</table>
Putrescine Degradation III | 2.78 | 0.73
Retinoate Biosynthesis II | 1.01 | 2.15
Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis | 2.48 | 1.85
Role of Osteoblasts, Osteoclasts and Chondrocytes in Rheumatoid Arthritis | 3.09 | 2.35
Tryptophan Degradation X | 2.78 | 0.73
VDR/RXR Activation | 2.38 | 4.01

### C - Top Upstream regulators

<table>
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<tr>
<th>Upstream regulators</th>
<th>z-score Nx</th>
<th>z-score Hx</th>
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<tbody>
<tr>
<td>AGT</td>
<td>-2.41</td>
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<tr>
<td>BMP4</td>
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<td>BMP6</td>
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<td>-1.71</td>
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<td>CCL5</td>
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<tr>
<td>CD40LG</td>
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<tr>
<td>CDKN2A</td>
<td>0.00</td>
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<tr>
<td>CSF2</td>
<td>-0.02</td>
<td>3.41</td>
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<td>HGF</td>
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<tr>
<td>HIF1A</td>
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<td>HOXA9</td>
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<td>IFN Beta</td>
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<td>-2.39</td>
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<td>IFNB1</td>
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<td>IFNG</td>
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<td>IL17RA</td>
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<td>IRF7</td>
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<td>MEF2C</td>
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<td>MEOX2</td>
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<td>MLXIPL</td>
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<td>NFIC</td>
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<td>NFKB (complex)</td>
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<td>PDGF BB</td>
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<td>POU4F1</td>
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<td>RELA</td>
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<td>1.08</td>
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<tr>
<td>SATB1</td>
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<td>SOX2</td>
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<td>STAT1</td>
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<td>TGFB1</td>
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<tr>
<td>Tnf (family)</td>
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<td>TNFSF12</td>
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<tr>
<td>WNT5A</td>
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</table>

Supplemental Table 1. Main biological functions associated with the alterations of Vdac1<sup>−/−</sup> MEF compared to Wt MEF (Wt) in normoxia (Nx) or hypoxia (Hx). (A, B, C, and D): Significant
categories of (A) Diseases and functions  (B) Canonical pathways and (C) Upstream regulators associated with the comparison of wild-type (Wt) and Vdac1−/− MEF in Nx or Hx using IPA™. Activation z-score (cut-off=2) or −log10 p-value (cut-off=2) are represented.