**Supplementary File 2**

* DNA sequences of neuronal and endodermal genes utilized in *in situ hybridization* or *hybridization chain reaction* gene expression studies
* Aromatic amino acid hydroxylase gene tree

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Aromatic amino acid hydroxylase gene tree (PhyML, default settings, aBayes branch support for most internal branches shown, Guindon et al., 2010) showing the relationship between previously analysed genes and genes used as cell markers in in situ hybridization. Leishmania PH were included as outgroups based on previous work (Siltberg-Liberles et al., 2008).