
Supplementary information

**Enteric glial biology, intercellular signalling
and roles in gastrointestinal disease**

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Supplementary Table 1 | Properties of astrocytes versus enteric glia

Known homeostatic properties of astrocytes	Shared homeostatic properties with enteric glia
Ionostasis in the nervous system (K ⁺ , Cl ⁻ , Na ⁺ , Ca ²⁺)	<ul style="list-style-type: none"> • Possible but untested • Expression of potassium channels^{1, 2}
Regulation of extracellular pH	<ul style="list-style-type: none"> • Unknown
Regulation of water homeostasis	<ul style="list-style-type: none"> • Possible but untested • Expression of AQP4³
Scavengers of reactive oxygen species	<ul style="list-style-type: none"> • Release of reduced glutathione^{4, 5}
Neurotransmitters homeostasis	<ul style="list-style-type: none"> • Probable • Uptake and inactivation of neurotransmitters and neuromodulators (glutamine synthetase⁶, GAT2⁷, PEPT2⁸, eNTPDase2^{9, 10}) • Removal and detoxification of waste NH₄⁺^{6, 11} • Supply neurotransmitter precursors (L-arginine^{12, 13} and glutamine⁶)
Neuronal metabolism support	<ul style="list-style-type: none"> • Unknown
Support neurogenesis and neuronal development	<ul style="list-style-type: none"> • Probable • Release of neurotrophic factors (proEGF, NGF)^{14–16} • Neuronal differentiation in response to intestinal injury^{17–19}
Regulation of synaptic homeostasis and neurotransmission	<ul style="list-style-type: none"> • Probable • Make synaptoid contacts with vesicle-containing nerve varicosities²⁰ • Respond to neuroligands (ATP, UTP, serotonin, histamine, endothelin family members, acetylcholine)^{21–24} • Expression of neurotransmitter and neuromodulator receptors (P2X7, P2Y2, P2Y4, P2Y1, A2B, mGluR5, α2a, SP1R, LPA1, M3, M5, LPA1)^{25–35} • Release of gliotransmitters in response to neuronal signaling (ATP, GABA, PGE₂)^{36–38}
Regulation of neurovascular unit and local blood flow	<ul style="list-style-type: none"> • Unknown • Release of vasoactive compounds (NO, PGE₂, ATP, VEGF)^{24, 36, 38–40} • Probable interaction with the vasculature (ETB, B2, PAR1, PAR2)^{24, 38, 41, 42}
Systemic homeostasis and barrier integrity	<ul style="list-style-type: none"> • Debated • Influence the maturation, differentiation, adhesion, migration and proliferation of the intestinal epithelium (GSNO, 15d-PGJ2, TGF-β, proEGF, 15-HETE)^{14, 43–47}
Modulate intestinal immune and inflammatory responses	<ul style="list-style-type: none"> • Probable • Express toll-like receptor 4 (TLR4) and MHC-II in disease states^{49, 50} • Release pro- and anti-inflammatory cytokines, and chemokines (IL-1β, IL-6, TGF-β)^{40, 42, 43, 51}

	• Shift to reactive state in response to homeostatic perturbation ^{46, 49, 52–54}
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