

SUPPLEMENTARY

Supplementary Table 1: Tissue expression, physiology and pathology of ASICs in mammals. Additional information on expression can be found on the Human Protein Atlas website at www.proteinatlas.org.

Isoform	Tissue distribution	Physiology and pathology
ASIC1a	<p>General: Glioblastoma cell line (Tian et al. 2017). Vascular smooth muscle (Chung et al. 2010; Jernigan 2015). Retina (Ettaiche et al. 2006). Bone (Jahr et al. 2005; Swain et al. 2012). Lung (Nitta et al. 2014). Tongue (Richter et al. 2004). Bladder (Kobayashi et al. 2009). Gut (Dong et al. 2011). Oligodendrocyte-lineage cells (Feldman et al. 2008). Heart (Redd et al. 2021). Kidney (Song et al. 2019).</p> <p>PNS: Dorsal root ganglion, sciatic nerve (Alvarez de La Rosa et al. 2003). Cochlear spiral ganglion (González-Garrido et al. 2015).</p> <p>CNS: Spinal cord (Alvarez de La Rosa et al. 2003; Wu et al. 2004; Duan et al. 2007; Baron et al. 2008). Brain: Forebrain, midbrain, brainstem, pons, cerebellum, hippocampus, cortex (Waldmann et al. 1997; Wemmie et al. 2002; Cho and Askwith 2008).</p> <p>Oligodendrocyte-lineage cells (Feldman et al. 2008).</p>	<p>Retinal function (Ettaiche et al. 2006).</p> <p>Seizure duration (Ziemann et al. 2008).</p> <p>Fear conditioning (Wemmie et al. 2002; Wemmie et al. 2004; Coryell et al. 2007; Ziemann et al. 2009).</p> <p>Anxiety (Coryell et al. 2007; Smoller et al. 2014).</p> <p>Multiple sclerosis (Frieze et al. 2007).</p> <p>Depression (Coryell et al. 2009).</p> <p>Synaptic plasticity (Zha et al. 2006).</p> <p>Addiction behaviour (Kreple et al. 2014).</p> <p>Lung hypertension, proliferation and migration of lung cancer cells (Nitta et al. 2014; Wu et al. 2017)</p> <p>Upregulation in joint capsule of frozen shoulder (Cho et al. 2015).</p> <p>Contribute to migration of cells in pancreatic cancer (with ASIC3) (Zhu et al. 2017).</p> <p>Upregulated by inflammation/inflammatory pain in spinal cord (Wu et al. 2004; Duan et al. 2007).</p> <p>Secondary damage after stroke and spinal cord injury (Xiong et al. 2004; Xiong et al. 2006; Hu et al. 2011; Koehn et al. 2016; Chassagnon et al. 2017).</p> <p>Ischemic injury after reperfusion in heart and kidney (Song et al. 2019; Redd et al. 2021).</p>
ASIC1b	<p>General: Inner ear (Bässler et al. 2001). Cochlear hair cells (Ugawa et al. 2006) .</p> <p>PNS: DRG (Chen et al. 1998).</p> <p>CNS: Spinal cord and brain (in rat): Forebrain, midbrain, brainstem, pons, cerebellum, hippocampus (Alvarez de La Rosa et al. 2003).</p>	<p>Possible role in nociception (Diochot et al. 2012; Verkest et al. 2018; Chang et al. 2019).</p>
ASIC2a	<p>General: Retina (Ettaiche et al. 2004). Heart (Abboud and Benson 2015). Taste cells (Ugawa 2003). Bone (Jahr et al. 2005). Glioma cells (Vila-Carriles et al. 2006). Bladder (Corrow et al. 2010)</p> <p>PNS: Dorsal root ganglion (Price et al. 1996; García-Añoveros et al. 2001; Alvarez de la Rosa et al. 2002; Cabo et al. 2015). Sciatic nerve (Alvarez de la Rosa et al. 2002). Cochlear spiral ganglion (Peng et al. 2004; González-Garrido et al. 2015). Skin (Montaño et al. 2009; Cabo et al. 2015).</p>	<p>Mechanosensation (García-Añoveros et al. 2001; Montaño et al. 2009; Cabo et al. 2015).</p> <p>Visual transduction (Ettaiche et al. 2004).</p> <p>Invasion and metastases in colorectal cancer (Zhou et al. 2017).</p> <p>Noise susceptibility (Peng et al. 2004).</p> <p>Taste (Ugawa 2003).</p> <p>Upregulation in joint capsule of frozen shoulder (Cho et al. 2015).</p>

	<p>CNS: Spinal cord (Price et al. 1996; Wu et al. 2004; Baron et al. 2008). Brain: amygdala, hippocampus, cerebellum, olfactory bulb, cortex and brain stem (Price et al. 1996). Oligodendrocyte-lineage cells (Feldman et al. 2008).</p>	<p>Upregulated by inflammation in the spinal cord (Wu et al. 2004).</p> <p>Cardiovascular homeostasis (Abboud and Benson 2015).</p> <p>Upregulation after cystitis (Corrow et al. 2010).</p>
ASIC2b	<p>General: Retina (Ettaiche et al. 2004). Taste cells (Ugawa 2003).</p> <p>PNS: Dorsal root ganglion (Price et al. 1996; Alvarez de la Rosa et al. 2002). Sciatic nerve (Alvarez de la Rosa et al. 2002). Cochlear spiral ganglion (González-Garrido et al. 2015).</p> <p>CNS: Spinal cord (Wu et al., 2004; Baron et al., 2008). Brain: amygdala, hippocampus, cerebellum, olfactory bulb, cortex and brain stem (Price et al. 1996).</p>	<p>Visual transduction (Ettaiche et al. 2004).</p> <p>Cardiovascular homeostasis (Abboud and Benson 2015).</p> <p>Taste (Ugawa 2003).</p>
ASIC3	<p>General: Glioblastoma cell line (Tian et al. 2017). Muscle arterioles (Molliver et al. 2005). Muscle (Walder et al. 2011). Joints (Ikeuchi et al. 2009). Gut (Yiangou et al. 2001). Heart (Sutherland et al. 2001; Abboud and Benson 2015). Inner ear (Hildebrand et al. 2004). Retina and cochlea (Maubaret et al. 2002). Bone (Jahr et al. 2005; Tong et al. 2011). Testis (Ishibashi and Marumo 1998). Intestine, adipose and bladder (Yiangou et al. 2001; Jones et al. 2005; Kobayashi et al. 2009; Corrow et al. 2010). Skin (Price et al. 2001).</p> <p>PNS: DRG/sensory neurons (Price et al. 2001; Molliver et al. 2005; Deval et al. 2008). Sciatic nerve (Alvarez de la Rosa et al. 2002). Colon afferent neuronal fibers (Jones et al. 2005). Cochlear spiral ganglion (González-Garrido et al. 2015).</p> <p>CNS: Spinal cord (Delaunay et al. 2012).</p> <p>CNS (low expression): Brain (increased in epilepsy) (Cao et al. 2016).</p>	<p>Visceral mechanosensitivity and inflammation (Yiangou et al. 2001; Jones et al. 2005).</p> <p>Metaboreception (Molliver et al. 2005).</p> <p>Cutaneous touch and nociception (Price et al. 2001; Walder et al. 2011).</p> <p>Inflammatory pain (Deval et al. 2008; Ikeuchi et al. 2009).</p> <p>Itch sensation (Peng et al. 2015).</p> <p>Cardiovascular homeostasis (Abboud and Benson 2015).</p> <p>Hearing (Hildebrand et al. 2004).</p> <p>Contribute to migration of cells in pancreatic cancer (with ASIC1) (Zhu et al. 2017).</p> <p>Inhibition of epilepsy (Cao et al. 2016).</p> <p>Role in angina (Sutherland et al. 2001; Yagi et al. 2006).</p> <p>Hyperalgesia in muscle (Walder et al. 2011).</p> <p>Upregulation in joint capsule of frozen shoulder (Cho et al. 2015).</p> <p>Upregulation after cystitis (Corrow et al. 2010).</p>
ASIC4	<p>General: Inner ear, pituitary gland (Gründer et al. 2000).</p> <p>PNS (low): DRG (neonate) and sympathetic ganglion (neonate) (Lin et al. 2015). Sciatic nerve (Alvarez de la Rosa et al. 2002).</p> <p>CNS: spinal cord, brain stem, olfactory bulb, pituitary gland, striatum, hippocampus, amygdala, thalamus, hypothalamus, cerebral cortex, cerebellum (Gründer et al. 2000; Lin et al. 2015; Hoshikawa et al. 2017). Oligodendrocyte-lineage cells (Feldman et al. 2008).</p>	<p>Role in fear suppression (Lin et al. 2015).</p>

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