

Table 1 | Characteristics and functions of the four MS channels, MscL, MscS, TREK-1, and Piezo involved in mechanosensation in bacteria and mammals.

Channel	MscL	MscS	TREK-1	Piezo
Cloned from (organism)	<i>E. coli</i>	<i>E. coli</i>	Mouse	Mouse
Homologs in other organisms	Bacteria, archaeobacteria, fungi	Bacteria, algae, fungi, archaeobacteria, plant	Mammals	Mammals, plant, protozoa, invertebrates
Conductance	~3000 pS [a, b]	~ 1000 pS [a, b]	~50 pS [c]	~25–70 pS [d, n, k]
Selectivity	not-selective [b, e]	weak: Cl ⁻ > K ⁺ > metabolites [b, e]	K ⁺ [c]	cation non-selective [d][f]
Activation	T _{1/2} : ~12 mN.m ⁻¹ [g]	T _{1/2} : ~6 mN.m ⁻¹ [h]	P _{1/2} : -20 to -60 mm Hg [c, i, j]	P _{1/2} : -25 to -48 mm Hg [d, k, l]
Inactivation	No	Yes (spheroplast) [a, m]	Yes, τ ~46 ms [c]	Yes, τ ~ 45 ms [n]
Activation factors	Membrane tension Membrane curvature [o]	Membrane tension Membrane curvature [p]	Membrane tension, Membrane curvature [q] heat, acidic pH, depol.,	unknown
Functions	"Emergency release valve"	"Non-emergency release valve" Internal crowding sensor	Pain perception, ischemia, vasodilatation...	Red blood cell volume touch and pain perception ...

a: Perozo and Rees (2003), b: Sukharev et al. (1997), c: Honore et al. (2006), d: Coste et al. (2010), e: Martinac et al. (2008), f: Bae et al. (2013), g: Sukharev (1999), h: Sukharev (2002), i: Patel et al. (1998), j: Bang et al. (2000), k: Bae et al. (2011), l: Peyronnet et al. (2012), m: Sotomayor et al. (2007), n: Gottlieb et al. (2012), o: Mukherjee et al. (2014), p: Vasquez et al. (2008), q: Maingret et al. (2000).

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