K3.3 receptors have recently emerged as potential targets for treatment of a variety of CNS disorders, including epilepsy, ataxias, hearing disorders, schizophrenia and cognitive impairments. K3.1–K3.4 protein isoforms contribute to the high-frequency firing of neurons such as auditory brain stem neurons, fast-spiking cortical and hippocampal GABAergic interneurons, and Purkinje cells of the cerebellum, and play an important role in the regulation of intrinsic excitability and neurotransmitter release at presynaptic terminals of many neurons.

B'SYS has generated a panel of cell lines stably transfected with K3.1a/b, K3.2, K3.3 and K3.4 subunits. Using automated (Qpatch®) as well as manual patch-clamp recordings, the aim of this validation study was to characterize these cell lines pharmacologically using the selective serotonin reuptake inhibitor paroxetine. In addition, the effect of K3 modulator 1 was investigated on K3.1b.

**Materials & Methods**

Sequences of K3.1a (NP_001075651.1), K3.1b (NP_001106212.1), K3.2 (NP_001391374.4), K3.3 (NP_0048968.2) and K3.4 (NP_0048969.2) were cloned into suitable expression vectors and verified by sequencing. Chinese hamster ovary (CHO) cells were stably transfected and selected by antibiotic resistance. Sequences of K3.1a (NP_001075651.1), K3.2 (NP_001391374.4), K3.3 (NP_001075651.1) and K3.4 (NP_004969.2) were cloned into suitable expression vectors and verified by sequencing. Chinese hamster ovary (CHO) cells were stably transfected and selected by antibiotic resistance. Sequences of K3.1a (NP_001075651.1), K3.2 (NP_001391374.4), K3.3 (NP_001075651.1), K3.4 (NP_0048969.2) were cloned into suitable expression vectors and verified by sequencing. Chinese hamster ovary (CHO) cells were stably transfected and selected by antibiotic resistance. Sequences of K3.1a (NP_001075651.1), K3.2 (NP_001391374.4), K3.3 (NP_001075651.1), K3.4 (NP_0048969.2) were cloned into suitable expression vectors and verified by sequencing. Chinese hamster ovary (CHO) cells were stably transfected and selected by antibiotic resistance.

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