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(54) Title: NOVEL HUMAN NUCLEIC ACID MOLECULES AND POLYPEPTIDES ENCODING A NOVEL HUMAN ION CHANNEL EXPRESSED IN SPINAL CORD AND BRAIN

(57) Abstract: The present invention relates to novel human nucleic acid molecules encoding novel human cation channels, and proteins and polypeptides encoded by such nucleic acid molecules. More specifically, the nucleic acid molecules of the invention include novel human genes, e.g., hVR1d.1 and hVR1d.2, that encode proteins or polypeptides that are expressed in spinal cord and brain tissues and display sequence homology and structural homology to the vanilloid and TRP (transient receptor potential) families of cation channel proteins. The proteins and polypeptides of the invention directed to this novel human cation channel may be therapeutically valuable targets for drug delivery in the treatment of human diseases that involve calcium, sodium, potassium or other ionic homeostatic dysfunction, such as central nervous system (CNS) disorders, e.g., degenerative neurological disorders such as Alzheimer's disease or Parkinson's disease, or other disorders such as chronic pain, anxiety and depression, stroke, cardiac disorders, e.g., arrhythmia, diabetes, hypercalcemia, hypocalcemia, hypercalciuria, hypocalciuria, or ion disorders associated with immunological disorders, gastro-intestinal (GI) tract disorders or renal or liver disease.