Stanford

Joan Kendig

Professor of Biology in the Department of Anesthesia, Emeritus

Anesthesiology, Perioperative and Pain Medicine

Bio

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Anesthesiology, Perioperative and Pain Medicine

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My laboratory tries to find out how pharmacologic agents used in the practice of anesthesia (general anesthetic and analgesic agents) lead to therapeutically desireable endpoints including unconsciousness, immobility and absence of pain. The old idea that general anesthetics are uniformly non-specific "membrane stabilizers" has given way to the realization that these agents exert specific actions on particular ion channels and intracellular signalling systems. Currently we are identifying anesthetic effects on ligand-gated and second messenger-operated ion channels in mammalian neurons, using both receptor-specific evoked potentials from isolated superfused spinal cord and whole cell patch clamp of neurons in situ in spinal cord slices. The goal of the research program is to construct a manageable set of actions which alone or in combination are both necessary and sufficient to bring about an anesthetic state.Most recently we have focused attention on mechanisms of spinal sensitization that contribute to chronic pain following injury and also to the development of tolerance to anesthetic and analgesic agents. We have described and partially characterized long term potentiation (LTP) in isolated spinal cord. We have also discovered long-lasting increases in spinal cord excitability following exposure to opioids such as morphine and to ethanol; these changes may be related to mechanisms of tolerance, dependence, and withdrawal.

Publications

PUBLICATIONS

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