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Sommario/riassunto	Adenosine 5'-triphosphate (ATP) is one of the most abundant molecule in living cells serving as universal energy "currency." After slow acceptance of the concept of the release and extracellular action of ATP, purinergic signaling is recognized as a widespread mechanism for cell-to-cell communication in living organisms. Additionally, the contribution of pyrimidine nucleotides (such as UTP and UDP) and sugar-nucleotides (i.e., UDP-glucose and UDP-galactose) have been more recently discovered. Purinergic signaling plays major physiological roles in mammalian central nervous system (CNS) such as neurotransmission, neuromodulation, communication in glial network and between neurons and glia. Extracellular ATP and its metabolic breakdown is a source of other nucleotides and adenosine providing the versatile basis for complex purinergic signaling through the activation of several families of purinergic receptors. G-protein coupled P1 receptors for adenosine, ionotropic P2X receptors for ATP and G-protein coupled P2Y receptors for ATP and other nucleotides are abundant and widely distributed in central neurons at pre-and post-synapse and in glial cells. Alterations of purinergic signals are associated with major CNS disorders including chronic pain, brain trauma ischemia, epilepsy, neurodegenerative diseases such as Alzheimer disease or Amyotrophic lateral sclerosis associated with neuro-inflammation as well as neuropsychiatric diseases, including

depression, anxiety and schizophrenia.