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(57) Abstract: Provided are antibodies capable of binding an antigen in an adenine nucleotide-dependent manner. Examples of adenine nucleotides include ATP, ADP and AMP, which are frequently present in tumor microenvironment at much higher concentrations in normal tissues. Such antibodies, if designed to target a tumor associated antigen or immune checkpoint molecule, can target tumor tissues more specifically than conventionally antibodies and thus have improved therapeutic index.

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