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(54) Title: PHARMACEUTICAL COMPOSITION COMPRISING ALBUMIN-BINDING ARGININE DEIMINASE FOR CANCER TARGETING TREATMENT

(57) Abstract: The present invention provides a pharmaceutical composition containing albumin-binding arginine deiminase fusion protein (AAD) for treating cancer or other arginine-dependent diseases. The AAD fusion protein can be purified from both soluble and insoluble fractions of crude proteins, it binds to human serum albumin (HSA) and has its high activity with longer half life for efficient depletion of arginine in cancer cells. The specific activities of wild-type ADI and AAD in the present invention are 8.4 and 9.2 U/mg (at physiological pH 7.4), respectively. The AAD used in the present invention can be used in the treatment of various cancers (e.g. pancreatic cancer, leukemia, head and neck cancer, colorectal cancer, lung cancer, breast cancer, liver cancer, nasopharyngeal cancer, esophageal cancer, prostate cancer, stomach cancer & brain cancer) and curing arginine-dependent diseases. The composition can be used alone or in combination with at least one chemotherapeutic agent to give a synergistic effect on cancer treatment and/or inhibiting metastasis.