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(54) **Title:** COMPOUNDS FOR ENZYME INHIBITION

(57) **Abstract:** Peptide-based compounds including heteroatom-containing, three-membered rings efficiently and selectively inhibit specific activities of N-terminal nucleophile (Ntn) hydrolases associated with the proteasome. The peptide-based compounds include an epoxide or aziridine, and functionalization at the N-terminus. Among other therapeutic utilities, the peptide-based compounds are expected to display anti¬ inflammatory properties and inhibition of cell proliferation. Oral administration of these peptide-based proteasome inhibitors is possible due to their bioavailability profiles.