DZ3: A Novel Analog that Selectively Targets and Eliminates Senescent Cells

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The increase of elderly people in society forces a smaller workforce to support a large dependent population. Cellular senescence may be one of the underlying causes of human aging. Curcumin is the antioxidant found in turmeric, an Indian spice that has multiple health benefits including that of eliminating cancerous cells. This study investigated the effect of DZ3, a curcumin analog, on senescent cells. Stage one of the experiment incubated different concentrations of DZ3 with sample groups of both normal and senescent wi-38 cells (fibroblast cells derived from human lung tissue) in vitro and found that DZ3 can selectively kill senescent cells at an optimum concentration of 2μM. Stage two attempted to find the mechanism through which DZ3 induces senescent cell death by observing apoptotic cell counts and measuring ROS levels in normal and senescent cell populations. The results show that DZ3 can selectively target and kill senescent cells independent of induction of apoptosis and increase in ROS production. Although the specific mechanism through which DZ3 induces senescent cell death remains unclear, by selectively targeting and killing senescent cells, DZ3 might be a compound that has high potential to retard the effects of aging in humans.

Awards Won: