BioPhysical Therapeutics

Within and across mammal species, lifespan is inversely proportional to resting metabolic rate (per unit mass). So might reducing the latter increase the former? Whereby metabolic rate enables life but produces damaging by-products, which cause accumulating damage (aging) that ultimately takes life away. In mammals (which have a body temperature of 37°C), the majority of metabolic rate is for metabolic heat generation. I've discovered the chemical reaction that mammals use to generate heat. And a drug to inhibit it. So a drug that, as demonstrated in mice, can reduce metabolic rate. Which I predict can slow aging (indeed, in support, genetically reducing metabolic rate - by reducing metabolic heat generation – extends lifespan in mice). Or reverse aging, if the damage rate can be made less than the repair rate (the body can repair damage caused by metabolic rate, but such damage outruns repair, conferring *net* damage). No metabolic heat generation is needed if the ambient temperature is at (or above) 37°C. A human, in typical clothing, has thermal comfort at an ambient temperature of 20°C. This drug can (via dose-dependently reducing metabolic heat generation) confer thermal comfort at higher ambient temperatures. That can help the large fraction of the global population that lives in hot climates/seasons. While (predicted) slowing/reversing their aging. When the drug is only applied topically to a small body part (e.g., in a cosmetic cream applied to the face), it is predicted to slow/reverse aging there. Without any thermoregulatory issues. Because less heat generation by that body part is mitigated by heat transfer (via blood flow) from the rest of the body. This drug has (as predicted) demonstrated anticancer activity *in vitro*, more than most present cancer drugs. Very distinctly, expected to help rather than harm the body.

P.S. As used above, the drug doesn't reduce body temperature. But if the subject is at low ambient temperature, a low drug dose (administered to all of the body) can cause a slight body temperature drop. Which is imperceptible, safe, and should confer its own anti-aging mechanism: aging is at least one chemical reaction, and (a law of chemistry is) chemical reactions run slower at lower temperatures. Indeed, calorie restriction causes a slight body temperature drop, which might be (at least in part) how it extends lifespan. Different humans actually have a range of resting body temperatures (35.2-37.7°C), wherein those with lower resting body temperatures live longer. Reducing the body temperature of mice by 0.34°C by genetically reducing their metabolic heat generation (correspondingly reducing their metabolic rate) increased their lifespan by 20%. People with Alzheimer's disease have a pathologically elevated body temperature; wherein (in corresponding mice studies) lower body temperature slows Alzheimer's disease progression, slowing its cognitive decline.

Contact (for further information): michael@biophysicaltherapeutics.com