in some cases trigger insulin resistance. This applies to substances such as rapamycin[46] and statins.[47] Therefore, people should use them with caution and only with careful medical monitoring.

Another method of anti-aging drug discovery is evaluating the pharmacological agents already approved by the FDA and other regulatory agencies for treatment of particular conditions associated with aging, such as statins, metformin, beta-blockers, renin-angiotensin-aldosterone system inhibitors, thiazolidinediones, and anti-inflammatory medications.[48] These classes of drugs are commonly used in the treatment of patients with various chronic medical conditions and their efficacy and safety have been proven in many clinical trials. They have also been shown to improve health, physiological functioning and well-being in middle to old age patients with chronic disorders.[49] Such agents are presently not used in the treatment of age-associated physiological dysfunctions in the absence of clinical manifestation of disease. However, these medications might theoretically be redirected to treating or preventing conditions or syndromes typically associated with aging.

Le Couteur *et al.*[50] noted in their review that 'despite the potential profits and the extraordinary capacity of drug discovery technology, there is a paucity of new drugs in the development pipeline, particularly for those medications that are likely to be highly profitable because they are used long term and by a large proportion of the population.' The longevity dividend, *i.e.* an idea that extending healthy life by slowing aging is the most efficient way to combat the fatal and disabling pathologies that plague us today,[51] may provide an opportunity to revitalize the drug development pipeline. Indeed, by delaying the aging process *per se*, it likely would be possible to prevent or delay all age-associated pathologies rather than to overcome them one by one, which is the current approach of the disease-based paradigm in drug development. Furthermore, prevention of a particular age-related chronic disorder, *e.g.*, cardiovascular disease, will apparently have only a modest effect on the population life expectancy because comorbidity, *e.g.*, cancer, will to a great extent substitute the reduction in mortality risk caused by preventing the targeted pathology. The main idea of geroscience is that preventing the clinical manifestations of all age-related diseases as a group by inhibiting the basic aging mechanisms can be far more effective than preventing the individual chronic disorders.[11,49] A recent analysis conducted by Goldman *et al.*[52] demonstrated that substantial socio-economic benefits might be derived from this approach in comparison with current public health strategy targeted to prevention of particular disorders. According to this analysis, the economic impact of delaying aging and increasing healthspan in the US is estimated at ~7 trillion dollars over the next fifty years. Hence, it is obvious that discovery of new drug targets based on biogerontological research represents an incredible opportunity for the pharmaceutical and healthcare industries.[53] Currently, the consensus among physicians and health professionals that the optimization of physiological and mental functioning throughout the life course should be a major emphasis of any contemporaneous biomedical policy addressing global aging. A healthy lifestyle comprising proper