Longevity Sticker Shock: The One Remaining Obstacle to Widespread Credentialed Support for Rejuvenation Biotechnology

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“It is difficult to get a man to understand something, when his salary depends on his not understanding it.”
—Upton Sinclair

TWO YEARS AGO, I highlighted in this space¹ a paper published in *Cell*² that was, to all intents and purposes, a restatement (albeit somewhat flawed) of the SENS paradigm for medical control of aging that first appeared more than a decade earlier.³ My delight at that paper, in spite of its failure to acknowledge my work, arose from the status of its authors—unequivocally mainstream luminaries with credentials far exceeding my own. This was the first time that one could truly say that the concept of comprehensive damage repair had progressed through all the stages described in various contexts by Gandhi, Haldane, Clarke, and others. No longer is it ignored, ridiculed, or even opposed; it is adopted as self-evident. For that reason, I refrained for over a year from crowing too loudly about this, preferring to let that paper garner the support it deserved (which it abundantly has, being cited roughly once a day) unconvicted by association with a renowned maverick.

Recently, the impact of the *Cell* paper was accentuated with the appearance of a report from the United Kingdom⁴ on the likely trajectory of anti-aging biomedical research. This report's co-authors are among the foremost grandees of British biology and medicine, and it consists of a summary of in-depth interviews with the most senior and well-respected biogerontologists in the country. Perhaps most telling is that one of the co-authors is Colin Blakemore, former head of the Medical Research Council (the UK counterpart of the US National Institutes of Health), who debated me in Oxford only a couple of years ago and opened his (uniformly skeptical) remarks with the admission (delivered with apparent pride) that he is not an expert on aging, but who is described in this paper as someone who “brings knowledge of the biological basis of ageing.” Maybe I had some influence after all. And the content of this report gave explicit reason for even greater optimism. For example, it is stated that “Regenerative medicine was considered by the

experts to have the greatest potential for delaying ageing.” Even though the article contains other statements that are more cautious, essentially because of an overly narrow definition of “regenerative medicine,” this cannot be viewed as anything other than a breathtaking leap forward from the attitude to regenerative medicine that prevailed in the biogerontology community only a few years ago.

But...yes, the title of this editorial should already have let you know that there would be a “but.” I am mentioned a couple of times by name in the article, but only in order to dismiss my position as out of touch with the mainstream. But that's not the “but.” The “but” is the article's discussion of longevity.

One does not need a PhD, nor even a high school education, to understand that the word “regenerative” denotes restoration of prior, greater function. Yet, throughout the Longevity Science Panel's article, discussions of longevity consist entirely of slowing aging down, rather than reversing it. How can such eminent scientists make such an elementary error?

I'm afraid to say that the answer is all too clear to someone who has spent as long as me debating these issues with the gerontology top brass. It is encapsulated in the Upton Sinclair quote at the start of this editorial: If one avoids that error, and acknowledges that damage repair constitutes the genuine reversal (rather than mere retardation) of the natural trajectory of functional decline, one is inexorably forced to the conclusion that regenerative medicine against aging will almost certainly deliver extremely dramatic increases in average life span. And the painful truth is that most of my colleagues in the biogerontology community do not want to be associated with the prospect of what journalists insist on calling “immortality.” They are petrified of the “sticker shock” that such talk induces—of the knee-jerk negative reactions that they see it inducing

among those policy-makers upon whose favor their funding ultimately depends.

Why am I so sure of the above? Isn't it a bit insulting to my colleagues to accuse them of such arrant myopia and cowardice? Well, let's look at the history of the debate. SENS is without doubt a seriously ambitious research program, and there is plenty of room for doubt concerning my claim that we have a 50% chance of completing it within the next couple of decades, as well as my claim that it will deliver about 30 years of additional healthy life to those who are already in middle age when it arrives. But those claims have not been the focus of the deprecation that I have endured over the past decade. That focus, instead, has been targeted squarely on the "longevity escape velocity" concept and its conclusions⁵—the proposition that the 30 years which I claim may result from "SENS 1.0" will be only the start, and that because SENS is a rejuvenation paradigm it will allow the same people who benefit from SENS 1.0 to benefit 30 years later from SENS 2.0 and so on. That concept is vastly *less* arguable than the current SENS program, and yet it elicits vastly *more* opprobrium. I see no alternative explanation for this abandonment of rationality, other than sheer rabbit-in-headlights petrification of association with an idea that might induce ridicule in the corridors of power.

What is to be done? Should those of us who see longevity as a *desirable* side-effect of the medical defeat of aging, rather than as a drawback, keep our views to ourselves? Should we pretend that these therapies will actually *not* deliver great increases in longevity? The temptation to pander to people's fear of the unknown is great. But I maintain that, in the long run, it would be counterproductive—that it might make our message more palatable at first, but only at the cost of diverting attention, and thus funds, toward low-hanging biomedical fruit and away from the more challenging but equally vital research themes that will contribute to truly comprehensive rejuvenation biotechnol-

ogy. So when I am asked about the longevity consequences of our work, I will continue to give straight answers to straight questions. Yes, I truly claim that the first person to live to 1000 is very probably only a few years younger than the first person to live to 150—and yes, I truly claim that those of my colleagues who ridicule that view are being intellectually dishonest for reasons of misguided political expediency. Those people are not only my colleagues, they are my friends; consequently it pains me enormously to express the above. But it would pain me far more to fail to do so, and thereby to perpetuate the fiction that the longevity side-effect of truly effective anti-aging medicine is something to fear and to deny.

References

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