April 2019 - Mid-Month Bonus

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In this issue: The Vantage Point: Popular on Social Media; Biological Aging Knows a Lot About Hormones and Immunity; The Selye Phenomenon: Scientists Behaving Badly (New Video Blog)

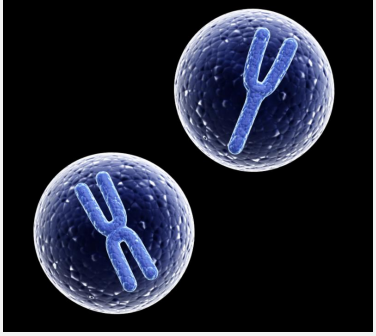
The Vantage Point: What's Been Happening in Dr. Bland's World?

Do you want to track Dr. Jeff Bland's activities, see photos from his travels, and find inspiration in his words? Follow his social media pages to stay connected!

Popular on Social Media!

Our genes are our Book of Life, and there are many positive stories to unlock. Too often, people associate genetic testing with negative concepts: risk of disease, fear of results, information better left unknown. But what if you flip that equation around and consider all of the good messages our genes impart: the power of resilience, the opportunity of longevity, the marvel of our very existence? That's the perspective Dr. Jeff Bland chooses to take and apparently it resonates. This recent quote was one of his most popular posts ever on Instagram and Facebook.

Biological Aging Knows a Lot About Hormones and Immunity



Insights into biological senescence have helped us understand that much "inevitable aging" isn't, and greatly depends on the lifestyle messages and exposures we send our bodies. Differences in immune and endocrine aging characteristics contribute to women's higher life expectancy compared to men, but while men have greater mortality from infections, accidents, heart disease, cancer, and tobacco and alcohol abuse, women experience more autoimmune disease—and dietary choices that clash with lifestyle and genetic messaging impact an expanding majority of both genders.

Immune cells represent an enormous variety of cell types and potential functional 'programs,' and different subpopulations differentially express receptors for androgens, estrogens, and progesterone, resulting in varying effects in women during different phases of the menstrual cycle and around pregnancy. Generally speaking, estrogens tend to stimulate acquired and innate immunity and encourage a pro-resolution, Th2-oriented immune response, while testosterone and progesterone have more suppressive effects; testosterone also tends to build a more pro-inflammatory Th1 response. One team of researchers described women as "immune-privileged," though some of these advantages are gradually lost with postmenopausal drops in estrogen levels. Expression of Y chromosome genes can further skew men's immune function, heightening propensity towards inflammation and coronary disease while also suppressing acquired immunity.

Immune changes that often accompany aging include:

- Altered balance between innate and acquired immune functions
- Greater elaboration of pro-inflammatory cytokines by mature, differentiated T-cells
- Reduced cellular autophagy (recycling of damaged cells/components) and accumulation of cellular debris
- Reduced production and rejuvenative activity of adult stem cells
- Decreased antibody response to immune stimulus (microbes, allergens, vaccines, etc.), especially in men
- Reduced innate immune cell function (e.g., migration, phagocytosis, cytokine production) in both genders
- Reduced production and function of naïve, not-yet-programmed T-cells
- Fewer overall lymphocytes and different breakdown among subtypes in women

Another recently-discovered manifestation of aging involves gene mutations in stems cells for precursors to circulating red and white blood cells (hematopoietic stem cells). Blood cell replication usually answers the body's need for the oxygen-carrying capacity of red blood cells or specialized white cell lines needed to mount an effective immune response, but these mutations (referred to collectively as CHIP, Clonal Hematopoiesis of Indeterminate Potential) accumulate over time and can alter epigenetic regulation of white blood cell division to result in massive populations of particular 'clonal' immune cells—despite absence of need for them. CHIP may be linked to type 2 diabetes and is known to significantly increase risks for all-cause mortality, cardiovascular events, and coronary disease as well as blood cell cancers.

Biological aging processes affect men's and women's immune function in different ways, yet older subjects enjoying a Mediterranean eating pattern supplemented with vitamin D showed impressive improvements in innate immune response and biomarkers of inflammation. It was especially remarkable to note that this United Kingdom-dwelling subpopulation of the NU-AGE study was somewhat resistant to dietary change compared to French, Dutch, and other groups—yet they still achieved notable benefits from the intervention. This may be due to successful nutrition counseling and follow-up, which assured that participants understood why specific changes were needed and how to adopt them, effectively sustaining their motivation over the course of the study.

Opinion Blog: There is More Than One Path to Great Discoveries

The Selye Phenomenon: Scientists Behaving Badly
Video Link: https://www.youtube.com/watch?v=kuqVOX__nJ4

When researchers focus on each other rather than their dedication to scientific inquiry, no one wins. Dr. Jeff Bland calls it "The Selye Phenomenon" and he would like nothing better than to see it replaced with a new era of consideration, collaboration, and celebration (of discoveries that benefit humanity).

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