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# The erythrocyte "has a life span" – erythrocyte aging between experimental and mathematical approaches

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## Abstract

Present paper explores the early twentieth century debate around the life span of the erythrocyte. Research around this problem is rooted in the clinical realm. Several studies were related to the interest in better understanding the basis of different cases of anemia. The evidence of a normal process of selective removal of old cells has focused attention to the study of the aging process of this specific blood cell and in a way marks the emergence of the aging erythrocyte as a biomedical object. Later, the mammalian cell became a promising experimental model in the study of aging, an idea fully embodied in papers published in the 1980s.

Whether these cells are removed from circulation at random or by age was object of much investigation and debate throughout a few decades. Both experimental and mathematical approaches were extensively used in the study of erythrocyte survival. In the late 1930s, Schiødt locates the discussion between a "theory of longevity" and a "theory of destruction". The isotopic labeling technique developed by Shemin and Rittenberg provided compelling evidence that the erythrocyte "has a life span", as these researchers conclude in a paper published in 1946. This evidence refers to the normal circumstances in humans and the study of survival curves proceeded in different species and conditions.

Here, I will look at the interplay between experimental and theoretical analysis in building broadly accepted knowledge with regards to the erythrocyte survival arguing that both approaches were fundamental in defining erythrocyte aging.

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