

Aging and Immunity III

11-13 January 2016
Siena, Italy

Steering Committee:

- Teresa Aguado
- Catherine Caillet
- Giuseppe Del Giudice
- Jorg Goronzy
- Beatrix Grubeck-Loebenstein
- Jacques Louis
- Valentina Picot

- Cindy Grasso meeting coordinator

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Background

Prolongation of life expectancy in the 20th century has been one of humanity's greatest triumphs. This significant increase in longevity however raises the crucial issue of healthy aging. Infectious diseases in the elderly clearly contribute to morbidity in this particularly vulnerable population. Therefore, preventing infectious diseases is necessary for healthy aging. Given the characteristics of the immune response in the elderly, vaccines and immunization strategies tailored for this particular population are needed and should be developed.

These issues were reviewed and discussed during two meetings organized by Fondation Mérieux in Siena in September 2009 and April 2012. During these meetings, the bases for immune senescence were reviewed and the possibilities for counteracting this waning of immune responsiveness and restoring immunocompetence in the elderly were discussed. In addition, examples of diseases that should be targeted by vaccination in the senior population were considered.

Thus, inasmuch as aging represents one of the major challenges of the 21st century, vaccines specifically directed to the elderly have become a public health priority, both in developed and in developing countries. Within this context, Fondation Mérieux is organizing this third meeting on «Aging and Immunity» to review the progress made during the last 3 and ½ years. During the meeting, particular attention will be given to discussing the advances made in relation to several issues raised by participants in the 2009 and 2012 workshops and considered to be of high priority for further research efforts.

These issues include:

-Assessing the progress in the understanding of the cellular and molecular bases for immune senescence; considering strategies for strengthening immune responsiveness in the elderly during vaccination without triggering potentially adverse side effects and discussing, in particular, the new technologies that make it possible to identify the subtle changes distinguishing immune reaction in the elderly from normal immune responsiveness.

-Reviewing the evidence that vaccination in the elderly delays the transition between « young old » to « old old » and thus discuss the age groups within the elderly population that should be particularly targeted by vaccination.

-Discussing the needs for reliable and robust biomarkers of vaccine-induced protection in the elderly (correlates of protective immunity) and better diagnostic tools.

-Defining strategies that integrate new understanding of the basis of immunosenescence with vaccinology and gerontology, and finding most appropriate ways to translate current scientific knowledge into vaccination strategies, particularly for the poorest countries.

References:

D. Boraschi, G. Del Giudice, C. Dutel, B. Ivanoff, R. Rappuoli and B. Grubeck-Loebenstein : Ageing and immunity: addressing immune senescence to ensure healthy ageing. *Vaccine*, 2010, 28, 3627-3631.

D. Boraschi, M-T. Aguado, C. Dutel, J. Goronzy, J. Louis, B. Grubeck-Loebenstein, R. Rappuoli and G. Del Giudice: The gracefully aging immune system. *Science Translational Medicine*, 2013, 5, 1-9.



Scientific programme

Monday 11 January 2016

15:00 - 16:00	Registration and welcome coffee	
16:00 - 16:30	Welcome addresses	Rino Rappuoli Fondation Mérieux
16:30 - 17:10	Keynote address 1: Economic aspects of vaccination of the elderly	David Bloom
17:10 - 17:50	Keynote address 2: New generation vaccine delivery that may apply to the elderly	Robert Seder

Session 1

The Burden of infectious and inflammatory diseases in the elderly

Chair: Teresa Aguado and Janet McElhanev

17:50 - 18:10	Aging and the burden of diseases in the elderly	Karl-Heinz Krause
18:10 - 18:25	Discussion	
19:30	Welcome dinner at Hotel Garden	

Tuesday 12 January 2016

Session 1 Continued

9:00 - 9:20	Frailty evaluation instruments for baseline characterization of clinical trial populations	Pieter Neels
9:20 - 9:35	Discussion	

Session 2

Progress in the understanding of the mechanisms
Underlying immunosenescence

Chair: Beatrix Grubeck-Loebenstein

9:35 - 9:55	T cells and aging	Jorg Goronzy
9:55 - 10:10	Discussion	
10:10 - 10:30	Adaptive immunity in the bone marrow in old age	Beatrix Grubeck-Loebenstein



Scientific programme

10:30 - 10:45	Discussion	
10:45 - 11:15	Coffee break	
11:15 - 11:35	B cells and aging	Bonnie Blomberg
11:35 - 11:50	Discussion	
11:50 - 12:00	Group Picture	
12:00 - 14:00	Lunch	
14:00 - 14:20	Innate immunity and aging	Ruth Montgomery
14:20 - 14:35	Discussion	
14:35 - 14:55	Effect of CMV infection in immune responsiveness	Rene A van Lier
14:55 - 15:10	Discussion	

Session 3

The input of big data to redefine biomarkers of immune responsiveness in the elderly

Chair: Jorg Goronzy

15:10 - 15:30	The serum antibody repertoire: lessons for vaccine development	George Georgiou
15:30 - 15:45	Discussion	
15:45 - 16:05	Single-cell systems-level analysis of human T cell response	Mark Davis
16:05 - 16:20	Discussion	
16:20 - 16:50	Coffee break	
16:50 - 17:10	Pitfalls of high dimensional data analysis as they apply to reproducibility and validation of biomarkers/signature elucidated from vaccine studies	Greg Finak
17:10 - 17:25	Discussion	
17:25 - 17:45	Genetic variants regulating immune cell levels in health and disease	Francesco Cucca
17:45 - 18:00	Discussion	



Scientific programme

Wednesday 13 January 2016

Session 4

Improving vaccine efficacy in the elderly

Chair: Giuseppe Del Giudice

9:00 - 9:20	Biomarkers of health and of influenza vaccination efficacy in aging	Anis Larbi
9:20 - 9:35	Discussion	
9:35 - 9:55	mTOR inhibition improves the response to influenza vaccination in the elderly	Joan Mannick
9:55 - 10:10	Discussion	
10:10 - 10:30	Adjuvanted vaccines for the elderly	Arnaud Didierlaurent
10:30 - 10:45	Discussion	
10:45 - 11:15	Coffee break	
11:15 - 11:35	Pneumococcal vaccination in the elderly	Paolo Bonanni
11:35 - 11:50	Discussion	
11:50 - 12:10	Metabolism, infections and vaccination – models and applications	Janko Nikolich-Zugich
12:10 - 12:25	Discussion	
12:30 - 14:15	Lunch	

Session 5

Round table discussion and end of the meeting

Chair:

14:15 - 16:00	Round table discussion and end of meeting	
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