

# Legends of allergology/immunology: Jean Julien Raoul Bousquet; a Chemist, a Pharmacist, a Biologist, a Physician and—above all—an innovative Scientist

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Having been given the opportunity to write this article about Jean Bousquet is certainly an honour and an absolute pleasure. Jean—born in 1946—has surely everything that is needed to become a Legend. This term is usually reserved for a famous person of ancient times; however, Jean is certainly not ancient, given that he is so extremely alert and up to date.

“Up to date” may in fact potentially be regarded as an insult by Jean, as we must admit that he is always at least ten years ahead. I, Torsten Zuberbier, have been working with Jean for the past 15 years in the leadership of GA<sup>2</sup>LEN and must confess that at numerous times he has more than proven this.

I, Anna Bedbrook, have been working very closely alongside Jean for twenty years. Since the beginning, I have never looked back and seem to have miraculously managed to keep up over the years with Jean's extremely rapid pace.

Jean has not only a photographic memory but also loves and captures all details of a situation at first glance. This clearly brings us to his scientific achievements. Jean is certainly the only physician to our knowledge who has completed 4 different university degrees, becoming a chemist at the age of 21, a pharmacist at 22, a biologist at 24 and a medical doctor at 29. His capacity of high productivity and diversity of projects conducted simultaneously was demonstrated when he obtained PhD and MD degrees in the same week (one in pharmacy (“Immunology of the pleural fluid”) and one in medicine (“Allergic risk and its prevention”)) while at the same time organizing an international meeting on allergen standardization.

For those who know Jean, it is easy to imagine when he tells us that at school, his teachers did not like him very much, that he was a bit of an annoying pest. Well, for those of you who have school-aged children who by chance also possess similar genius-like tendencies,

maybe it would be a good idea to tell them not to correct their teacher in every lesson. We believe that Jean was never given this advice..! At school, Jean's admirable capacity in science was based both on his photographic memory and on his speed of reading, easily comparable to the xerox machines of his time. To be noted that Jean taught himself to read at the age of 6 by studying cars in the street and working out the make and model of each one. In fact, should you accompany Jean anywhere in the world, you don't need Wikipedia, as he himself is an actual walking encyclopaedia and a Wikipedia reader at bedtime. He can tell you everything there is to know about the monuments you visit (history, date of construction, height, width...) as well as the artists whose masterpieces you admire (techniques used in each painting, date of birth/death of the artist). He is a museum guide's nightmare, catching him/her out on any incorrect dates or facts.

As Jean himself states, one of his favourite hobbies is Astronomy. However, he is not attracted to the stars in the sky but to those in the Michelin Guide. He seems to know most of the names of these top restaurants. When travelling with Jean, you can be sure that you will not need to look up the best museum or the most prestigious restaurant in town.

At conferences, should you ever have any doubts whatsoever regarding bibliography, just ask Jean and he will give you not only the list of authors, but also the name of the journal and, as a bonus, the page numbers! And he still laughs when he does so (Figure 1).

At the end of 1989, he began to set up a research laboratory at the Aiguelongue Hospital (Montpellier). The construction of the new Arnaud de Villeneuve Hospital (Montpellier) marked the start of his activity in basic research. His enthusiasm and self-confidence enabled him to apply to INSERM for recognition of his already-accomplished



**FIGURE 1** Jean as a happy and brilliant speaker. ARIA was initiated during a WHO workshop and its first guideline was published in 2001. Another very important political and scientific achievement was GA<sup>2</sup>LEN (the Global Allergy and Asthma European Network) which was created and funded by the European Union. Jean was one of GA<sup>2</sup>LEN's driving forces together with Paul van Cauwenberge. Jean has been on the board as Vice-President from the very beginning and, in his own creative way, has always added new ways of thinking and new research topics, even EU Grants such as MeDALL (Mechanisms of the Development of ALLergy). One of Jean's major driving forces has been his dear wife, H el ene, who accompanied him during many years of work and travel and who is well known and liked by his friends and colleagues, both at festive occasions as well as in relaxed surroundings

**TABLE 1** Jean's major contributions

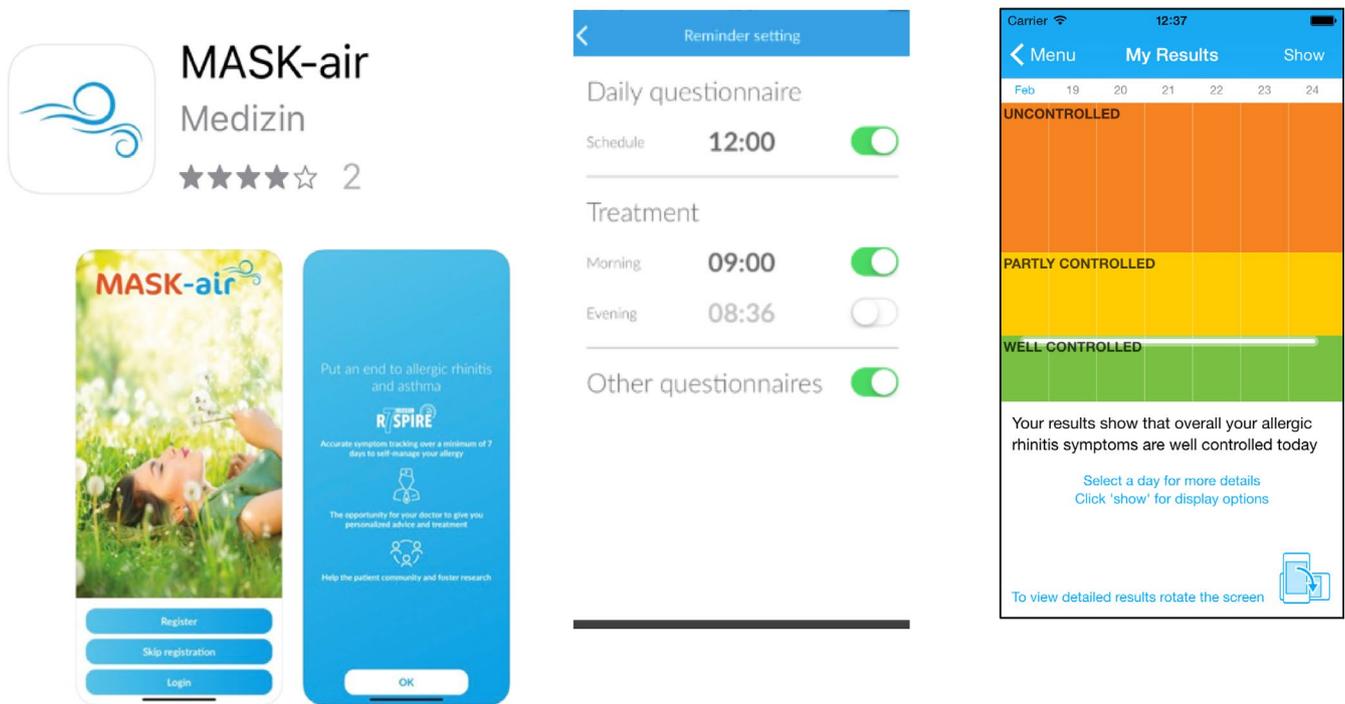
Confirmed the importance of eosinophils in the pathogenesis of asthma and its severity (1990)
Proposed and confirmed the concept of airways remodeling in asthma (1992)
Showed that rhinitis alters quality of life more than mild to moderate asthma (1992)
Proposed that mono and polysensitization are different diseases (1992)
Allergen immunotherapy guidelines, WHO position paper (1997)
Initiated the Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines, which reclassified allergic rhinitis according to its persistence and severity (1999)
Initiated the Global Alliance against Chronic Respiratory Diseases (GARD), WHO (2004)
Proposed the concept of epigenetic mechanism in asthma (2004)
Proposed and confirmed that allergic rhinitis is not a disease remodeling the airways because of its embryologic origin (2004)
Improved our current understanding on the mechanisms implicated in the initiation of allergic diseases (MeDALL, 2011)
Identified a multimorbid polysensitized phenotype and its association with a Type 2 pattern and the severity of allergic diseases (2015)
Developed and implemented mobile technology in rhinitis and asthma: Mobile Airways Sentinel network (MASK) (2016)
Combined big data, classical epidemiology, bio-informatics and a genomic approach, disentangled rhinitis as a single disease and rhinitis and asthma, and showed that rhinitis and conjunctivitis are two different diseases (2020)

work. In 1992, the request to establish a laboratory was accepted by the national authorities. The CJF 92-10 was created and renewed 2 years later—which did not keep him from playing tennis during lunch breaks or visiting his home in the mountains on extended weekends (Figure 1).

Apart from indulging in his own research, he soon discovered that the greatest achievements could be accomplished by creating large networks and initiatives starting with GINA, the Global Initiative for Asthma, which he chaired from 1998 to 1999. He soon then discovered that linking allergic rhinitis with asthma would better gain the attention of the health politicians and the World Health Organization (WHO). In this sense, he founded his greatest baby—Allergic Rhinitis and its Impact on Asthma (ARIA)—the most frequently worldwide-read guideline and, more than that, a network of renowned researchers spanning the globe (see also Table 1).

He then became director of the WHO Collaborating Centre for asthma and rhinitis in Montpellier in 2001 with affiliates in 64 countries. Subsequently, he set up the WHO Global Alliance against chronic Respiratory Diseases (GARD) initiative which he chaired between 2005 and 2013.

In 2008, ARIA was updated and then, in its 2010 revision, it became the first chronic respiratory disease guideline to adopt the GRADE (Grading of Recommendation, Assessment, Development and Evaluation) approach, an advanced evidence evaluation methodology. ARIA now has a 600-member working group which



<https://www.mask-air.com>

**FIGURE 2** MASK uses mobile technology to develop care pathways for the management of rhinitis and asthma. It has been officially recognized by DG Santé as a Good Practice on the digital transformation of health and care in rhinitis and asthma. MASK has developed a smartphone App for Android and Apple (MASK-air) that has been launched in 25 countries and 19 languages

includes 80 countries and more than 40 different languages. Determined to keep up with the times, Jean's ARIA created MASK (Mobile Airways Sentinel network) with a working group of 250 members. When Jean successfully launched the next step in ARIA—the MASK-air App (Figure 2)—he entered a new field of work: digital health. Jean soon discovered that pooled data enabled a new understanding and new ways of looking at the same facts from a different angle.

Another important topic of his recent work is the area of Active and Healthy Ageing (AHA) in Horizon 2020 within the programme of the European Innovation Partnership (EIP). Jean has not only managed to enter his own region in France as a reference site—now already highly decorated—but also to establish GA<sup>2</sup>LEN as a pan-European network, also as a reference site. Gaining this knowledge will truly support research in finding better strategies for helping allergy sufferers to achieve their personal AHA, while Jean himself—now aged 73—can be quoted that he is already a living example of a personal HAHA (HYPER Active and Healthy Ageing). He was the first ever to link allergy and active and healthy ageing, not only with climate change but also with the truly universal term “planetary health” which unites all necessities of our planet, going beyond the wishes of a better nature, a better climate and better wildlife protection.

It should be noted that Jean has published over 1200 articles throughout his career, the majority of which having been written

by himself, and has an extremely impressive Hirsch index of 158 in Google Scholar (see examples in References 1-5). He is the most frequently quoted author in asthma worldwide and cannot be overlooked at any conference, despite a few of his regular quotes: “I’m a crazy guy”—“I’m a simple guy.”

Well, Jean, whatever you think... We think that you are not just “any” guy but a most wonderful and brilliant (no other word to describe you) person and, to be precise, you are already more than a “Legend in Allergy.” You have well and truly earned your place as a “Legend in Medicine”!

The main article is longer than the restrictions of this printed version. The full-length original manuscript can be found on the GA<sup>2</sup>LEN website <http://www.ga2len.net>.

#### CONFLICTS OF INTEREST

Dr. Zuberbier reports personal fees from Bayer Health Care, FAES, Novartis, Henkel, Novartis and Henkel, and personal fees from AstraZeneca, AbbVie, ALK, Almirall, Astellas, Bayer Health Care, Bencard, Berlin Chemie, FAES, HAL, Leti, Meda, Menarini, Merck, MSD, Novartis, Pfizer, Sanofi, Stallergenes, Takeda, Teva, UCB, Henkel, Kryolan and L'Oréal Fee for talk, outside the submitted work.

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