



Publication Analysis 1996-2006

Dermatology

German speaking researchers dominate Europe's dermatological research. One reason is that they are very active in the hot field of skin cancer immunotherapy.

The display sign next to the "Skin Man" shown in the photo on the left reads: "In order to respond to the external environment that changes continuously, the human body has developed a perfect protection – the skin. [...] The skin is the body's largest organ. The total area of an adult's skin is about 1.8 to 2m³ and weighs about 10kg. Taking up 8-10% of the body weight, skin is composed of cuticle and corium. The eyelids are the thinnest area at about 0.25mm. The hands and feet have the thickest dimensions at about 3-5mm. Skin is in direct contact with the external environment and so it protects the body from the invasion of harmful materials and bacteria. It also functions as a protective barrier that prevents the loss of body fluid. Nerves under the skin react to minute stimulation. Skin is also the body's "air conditioner" as it has an important role in regulating body temperature."

While serving such a multitude of protective and regulative functions it is no wonder that at the same time our largest and most exposed organ is in particular danger of catching or developing a wide variety of diseases. Most likely, this is the reason why the lion's share of skin research centres around the mechanisms, diagnosis and therapy of dermatological diseases.

"Invaders" from other fields

At least in terms of research performance, however, two groups stand out clearly from the whole variety of skin diseases: skin cancer and allergies. The interest in these topics has been so intense lately that quite a number of researchers from other fields have "invaded" skin research – spearheaded, of course, by cancer researchers and immunologists. No doubt this is generally for the good of skin disease research. At the same time, however, these "invaders" certainly pose a problem for our publication analysis of European dermatology research. Take, for example, researchers trying to modify T-cell responses in order to specifically kill melanoma cells. Are they dermatologists, immunologists or cancer researchers?

This problem can largely be avoided if only publications in dermatological-specific journals are analysed. At least it is aimed to mainly discuss these in the skin research community.

At the same time, this conveniently coincided with the fact that we actually *had* to restrict the analysis of the European countries' publication performances in dermatological research to the specialist journals for technical reasons, anyway. Thomson Scientific's citation database "Web of Science" simply provides no tools to exclusively extract dermatology articles from multidisciplinary journals like *Nature* or *The Lancet* with sufficient reliability.

Of course, this way the most prominent papers in the field were obviously omitted from this part of the analysis. Nevertheless, we believe a survey, restricted to the expert journals in der-

Plasticised skin at an exhibit

matology, already provides sufficiently valid indicators for the overall productivity of the individual countries' performances in skin research over the period 1996 to 2006 (see tables on this page). For the rankings of the most-cited researchers and papers in skin research (see tables p. 36), however, publications in all journals were included.

Scandinavian triumph

Now, for the results. Regarding the countries' overall publication and citation rates, the clear winner is Germany. Its second-placed, constant European "rival", England, is left behind by numbers of publications as well as the numbers of their citations. However, England achieved a slightly better citation-per-article than their German colleagues. France collected "only" about half the number of citations as Germany but, nevertheless, made it to third place.

As usual, the picture turns around in favour of the smaller European research countries when looking at the average citation rate of their respective papers 1996-2006. For the dermatology journals, a Scandinavian quartet emerged here as surprising winners: First is Iceland with 16.3 citations per article (24th

Europe...			
Country	Citations	Articles	Cit./Art.
1. Germany	69,699	10,458	6.7
2. England	60,098	8,219	7.3
3. France	35,543	7,087	5.0
4. Italy	24,539	4,326	5.7
5. Netherlands	20,062	2,042	9.8
6. Switzerland	15,638	1,973	7.9
7. Sweden	14,114	1,417	10.0
8. Spain	13,266	2,444	5.4
9. Austria	12,508	1,735	7.2
10. Denmark	10,680	1,064	10.0
11. Belgium	9,928	1,302	7.6
12. Scotland	9,610	1,215	7.9
13. Finland	8,109	770	10.5
14. Turkey	5,892	1,554	3.8
15. Israel	5,832	984	5.9
16. Wales	4,704	632	7.4
17. Ireland	4,305	581	7.4
18. Poland	3,063	604	5.0
19. Norway	2,546	267	9.5
20. Greece	2,386	470	5.1

Articles appearing between 1996 and 2006 in dermatology journals as listed by Thomson Scientific. Their citation numbers were recorded up until May 2008. A country's figures are derived from articles where at least one author working in the respective European nation is included in the author's list. Israel is included because it is a member of many European research organisations (EMBO, FEBS etc.), and also participates in the EU Research Framework Programmes.

... and the world

	Citations	Articles	Cit./Art.
Europe	273,128	44,976	6.1
USA	197,605	27,184	7.3
Canada	43,847	7,432	5.9
Australia	15,712	1,716	9.2
Japan	10,641	1,242	8.6
South Korea	5,977	1,537	3.9

by overall number of citations), followed by Finland (10.5), Sweden and Denmark (both 10.0). Norway came in behind the Netherlands (9.8) at sixth place (9.5) and completes the Scandinavian triumph.

When expanding the analysis beyond Europe the most striking result is the European dominance over their US colleagues. There is hardly any other biomedical discipline in which the USA lags behind Europe to such a high extent in number of articles and citations.

A similar dominance is revealed when looking at the most-cited papers and researchers in skin research. By far the most author names come from German speaking countries. Nineteen of the Top 30 most-cited authors are working in Germany (13), Zurich, Switzerland (5) and Innsbruck, Austria (1). Seven of them even made it into the Top 10.

Two landmark papers...

The clear "citation leader" is Gerold Schuler from the Department of Dermatology at the University of Erlangen-Nuremberg, Germany. In 1985 he and Ralph Steinman from the Rockefeller University in New York authored a real citation classic on the concept of dendritic cell maturation (*J. Exp. Med.* 161: 526-46). Since then his subsequent research has focussed on dendritic cell vaccination of metastatic melanomas.

Schuler is followed by Thierry Boon of the Ludwig Institute for Cancer Research in Brussels whose research also centres around the tumour immunology of melanoma cells. His "citation classic" is a 1993 paper about the identification of a tyrosine kinase gene coding for a melanoma antigen which offers a potential target for T-cell mediated immunotherapy (*J. Exp. Med.* 178: 489-495). The third place on the podium was taken by Rein Willemze of the Leiden University Medical Center who specialises in the investigation of cutaneous B-cell lymphomas.

... and a shady one

The fact that tumour immunology of skin cancers constitutes the dominating research subject in dermatology is even more strikingly documented by the list of the most-cited papers: all five top papers belong to this field. In particular, the top paper from 1998 on the vaccination of melanoma patients with "activated" dendritic cells subsequently caused quite a stir in the community but this was not only in a positive sense. First author, Frank Nestle, who was working in Zurich at the time, was later accused of having behaved unethically in the recruitment of patients to the study. Moreover, the results of the study are still waiting to be independently reproduced.

RALF NEUMANN



Publication Analysis 1996-2006 – Dermatology

Most Cited Authors...

	Citations	Articles		
1. Gerold Schuler, Dermatol. Univ. Erlangen	10,364	185		
2. Thierry Boon, Ludwig Inst. F. Cancer Res. Brussels	8,097	141		
3. Rein Willemze, Dermatol. Univ. Leiden	7,916	486		
4. Eva-Bettina Bröcker, Dermatol. Univ. Würzburg	7,250	337		
5. Alexander Enk, Dermatol. Univ. Heidelberg	6,988	132		
6. Pedro Romero, Ludwig Inst. F. Cancer Res. Lausanne	6,643	150		
7. Jürgen Knop, Dermatol. Univ. Mainz	6,573	213		
8. Ralf Paus, Dermatol. Univ. Lübeck	6,495	312		
9. Thomas Ruzicka, Dermatol. Univ. Munich	6,429	404		
10. Günther Burg, Dermatol. Univ. Zürich	6,297	375		
11. Reinhard Dummer, Dermatol. Univ. Zurich	5,823	306		
12. Johannes Ring, Dermatol. Tech. Univ. Munich	5,710	447		
13. Helmut Jonuleit, Dermatol. Univ. Mainz	5,653	61		
14. Thomas A. Luger, Dermatol. Univ. Münster	5,618	367		
15. Danielle Lienard, Multidisc. Oncol. Ctr. Lausanne	5,601	87		
16. Lars E. French, Dermatol. Univ. Zurich	5,523	110		
17. Giorgio Parmiani, Istituto Nazionale dei Tumori Milan	5,400	158		
18. Donata Rimoldi, Ludwig Inst. F. Cancer Res. Lausanne	5,357	75		
19. Michael Detmar, Pharmaceut. Sci. Swiss Fed. Inst. Technol. (ETH) Zürich	5,284	143		
20. Irene M. Leigh, Cell. & Mol. Med. Univ. Dundee	5,158	203		
21. Hywel C. Williams, Dermatol. Univ. Nottingham	5,118	214		
22. Enno Christophers, Dermatol. Univ. Kiel	4,891	238		
23. Dirk Schadendorf, Dermato-Oncol. German Cancer Res. Ctr. Heidelberg	4,814	194		
24. Martien L. Kapsenberg, Dermatol. Acad. Med. Ctr. Univ. Amsterdam	4,791	85		
25. Wolfram Sterry, Dermatol. Hosp. Charité Humboldt Univ. Berlin	4,762	410		
26. Veli-Matti Kähäri, Dermatol. Univ. Turku	4,755	117		
27. Nikolaus Romani, Dermatol. Univ. Innsbruck	4,529	98		
28. Jens-M. Schröder, Dermatol. Univ. Kiel	4,521	128		
29. Juha Kere, Med. Gen. Univ. Helsinki and Karolinska Inst. Stockholm	4,511	223		
30. Brunello Wüthrich, Allergy Unit, Dermatol. Univ. Zurich Hosp.	4,454	207		

Citations of articles published between 1996 and 2006 were recorded until May 2008 using the database Web of Science from Thomson Scientific. The "most cited papers" had correspondence addresses in Europe or Israel.

... and Papers

	Citations
1. Nestle, FO; Alijagic, S; Gilliet, M; Sun, YS; Grabbe, S; Dummer, R; Burg, G; Schadendorf, D Vaccination of melanoma patients with peptide- or tumor lysate-pulsed dendritic cells. <i>NATURE MEDICINE</i> , 4 (3): 328-332 MAR 1998	1,831
2. Hahne, M; Rimoldi, D; ...; Romero, P; ...; French, LE; ...; Lienard, D; Cerottini, JC; Tschopp, J Melanoma cell expression of Fas(Apo-1/CD95) ligand: Implications for tumor immune escape. <i>SCIENCE</i> , 274 (5291): 1363-1366 NOV 22 1996	957
3. Jonuleit, H; Schmitt, E; Schuler, G; Knop, J; Enk, AH Induction of interleukin 10-producing, nonproliferating CD4(+) T cells with regulatory properties by repetitive stimulation with allogeneic immature human dendritic cells. <i>JOURNAL OF EXP. MEDICINE</i> , 192 (9): 1213-1222 NOV 6 2000	749
4. Thurner, B; Haendle, I; ...; Jonuleit, H; ...; Bröcker, EB; Steinman, RM; Enk, A; Kämpgen, E; Schuler, G Vaccination with Mage-3A1 peptide-pulsed mature, monocyte-derived dendritic cells expands specific cytotoxic T cells and induces regression of some metastases in advanced stage IV melanoma. <i>JOURNAL OF EXP. MEDICINE</i> , 190 (11): 1669-1678 DEC 6 1999	720
5. Lutz, MB; Kukutsch, N; Ogilvie, AL; Rossner, S; Koch, F; Romani, N; Schuler, G An advanced culture method for generating large quantities of highly pure dendritic cells from mouse bone marrow. <i>JOURNAL OF IMMUNOLOGICAL METHODS</i> , 223 (1): 77-92 FEB 1 1999	687