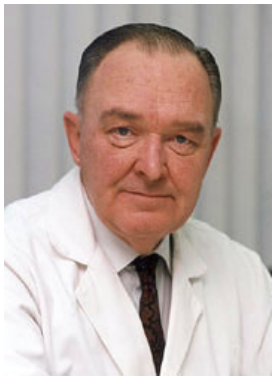
# Paul A.J. Janssen



Turnhout, Belgium, 12 Sept. 1926 – Rome, Italy, 11 Nov. 2003

**Title** Professor of Pharmacology and Chairman, Janssen Research Foundation, Beerse, Belgium

**Nomination** 25 June 1990

**Most important awards, prizes and academies**

St.-Jozefscollege, Turnhout (Belgium): humanities (1937-1943); Facultés Notre-Dame de la Paix, Namur (Belgium): Bachelor of Natural Sciences (*magna cum laude*) (1943-1945); Catholic University of Louvain and State University of Ghent (Belgium): Doctor of Medicine (*magna cum laude*) (1945-1951); Part-time assistant: State University of Ghent, to Prof. C. Heymans (1950-1956); University of Cologne (Germany), to Prof. Dr. J. Schuller (1951-1952); research in the family business, N.V. Produkten Richter (Belgium) (1953-1957); President and Director of research, Janssen Pharmaceutica NV. (1958-1991); Vice Chairman, Johnson & Johnson International, New Brunswick, NJ (USA) (1979-1991); Chairman, Janssen Research Foundation Worldwide, Beerse (Belgium) (1987-2003); Honorary Chairman of the Board of Directors of Janssen Pharmaceutica NV. (1991-2003). He held over 100 patents as inventor of several drugs; authored or co-authored more than 832 scientific publications; received 20 honorary doctorates: Antwerpen, Gent, Leuven and Liège (Belgium), Edmonton, Halifax and Montreal (Canada), Prague (Czech Republic), Nanjing (China), Düsseldorf and Frankfurt (Germany), Szeged (Hungary), Dublin (Ireland), Beersheba (Israel), Pavia and Rome (Italy), Maastricht (Netherlands), Granada (Spain), Lund (Sweden) and Istanbul (Turkey); was a member/ director of over 25 organisations, including: Academia Europea, American College of Neuropsychopharmacology, Collegium International Neuro-Psychopharmacologicum, Russian Academy of Medical Sciences, WHO Health R & D Review Committee; received more than 70 scientific and professional awards, including: J.F. Heymans Prize, State University of Ghent (Belgium) (1956); Carl Wilhelm Scheele Prize, Pharmaceutical Society of Sweden, Stockholm (1965); Taylor Manor Hospital, Psychiatric Award, Baltimore, Md (USA) (1970); Adrian Stevens Prize, Flemish Chemical Society, Ghent (Belgium) (1978); Johnson Medal for Extraordinary Achievements, New Brunswick, NJ (USA) (1978); Gairdner Foundation Award, Toronto (Canada) (1982); Award in Medicinal Chemistry, American Chemical Society (USA) (1984); Galenus Prize (Journal du Médecen, Journal du Pharmacien (Belgium) for ketoconazole (1984) and astemizole (1985) (1984); Quinquennial Prize for Pharmaceutical and Therapeutic Sciences, Belgium Royal Academy of Medicine (1984); Chauncey D. Leake Award, University of California, San Francisco (USA) (1986); Discoverers' Award, Pharmaceutical Manufactures Association, Washington DC (USA) (1987); Dirk van Os Medal, Groningen University Fund Foundation (Netherlands) (1989); Jacob Henle Medal, Georg-August University, Göttingen (Germany) (1990); Carothers Award, American Chemical Society, Delaware Section (USA) (1990); Golden Jaroslav Heyrovsky Medal, Czechoslovakian Academy of Science, Brezna (Czechoslovakia) (1990); Distinguished Service Award, American College of Clinical Pharmacology, Nev. (USA) (1990); Decoration of the Order of the Rising Sun, Golden Rays with Neck Ribbon, conferred by His Majesty the Emperor of Japan (1991); Grand Officer of the order of the Crown, Belgian Royal Academy of Medicine (1991); Honorary Professor (1993) and Consulting Professor (1994/1996) in Dermatology, Stanford University (USA) (1993/1996); Galenus Prize for Risperdal® (risperidone), Canada (1995); Galenus Prize for Risperdal® (risperidone), France (1996); The Pharmaceutical Discoverer's Award, NARSAD (National Alliance for Research on Schizophrenia and Depression) (USA) (1996); Grand Officer of the Order of Leopold, Belgian Royal Academy of Medicine (1996); International Galenus Prize for Risperdal® (risperidone), London (UK) (1996); Visiting Professor, Faculty of Medicine, University of Nanjing, P.R. of China (1997); 'Chaire Pierre Dumont' award 1998-1999, School of Pharmacy, Catholic University of Louvain, Brussels (Belgium) (1998).

## Summary of scientific research

The leitmotiv throughout Dr. Paul Janssen's medicinal research career was the relationship between the chemical structure of a compound and its biological activity in the organism. This had applications through the finding of new medicines in different medical disciplines. In turn, these new molecules expanded our fundamental knowledge of normal and pathological physiology.

Over the years advances of medicine through dedicated drug research carried out under the guidance of Dr. Paul Janssen have been achieved in: analgesia and anaesthesia, psychiatry, parasitology, mycology, gastroenterology, cardiovascular diseases, allergology, immunology, oncology, and virology. In his final years Dr. Paul Janssen's interest had been directed towards the design of potential new medicines to use against HIV.

## Main publications


Janssen P.A.J., *Pirinitramide (R03365), a potent analgesic with unusual chemical structure*. «The Journal of Pharmacy and Pharmacology», *13*, 513-530 (1961); Janssen P.A.J., *A review of the chemical features associated with strong morphine-like activity*. «British Journal of Anaesthesia», *34* (4), 260-268 (1962); Janssen P.A.J., Niemegeers C.J.E., Dony J.G.H., *The inhibitory of fentanyl and other morphine-like analgesics on the warm water induced tail withdrawal reflex in rats*. «Arzneimittel-Forschung, *13*, 502-507 (1963); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., Verbruggen F.J. and Van Nueten J.M., *The pharmacology of dehydrobenzperidol, a new potent and short acting neuroleptic agent chemically related to haloperidol*. «Arzneimittel-Forschung, *13* (3), 205-211 (1963); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., *Is it possible to predict the clinical effects of neuroleptic drugs (major tranquillizers) from animal data*. Part I. *'Neuroleptic activity spectra' for rats*. «Arzneimittel-Forschung, *15*, 104-117 (1965); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., *Is it possible to predict the clinical effects of neuroleptic drugs (major tranquillizers) from animal data*. Part II. *'Neuroleptic activity spectra' for dogs*. «Arzneimittel-Forschung, *15*, 1196-1206 (1965); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., *Is it possible to predict the clinical effects of neuroleptic drugs (major tranquillizers) from animal data*. Part III. *The subcutaneous and oral activity in rats and dogs of 56 neuroleptic drugs in the jumping box test*. «Arzneimittel-Forschung, *16*, 339-346 (1966); Janssen P.A.J., *The pharmacology of haloperiod*. «International Journal of Neuropsychiatry», *3* (suppl. 1), 10-18 (1967); Janssen P.A.J., *Haloperiod and related butyrophenones*. «Psychopharmacological Agents», *2*, 199-248 (1967); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., Lenaerts F.M., *Is it possible to predict the clinical effects of neuroleptic drugs (major tranquillizers) from animal data*. Part IV. *An improved experimental design for measuring the inhibitory effects of neuroleptic drugs on amphetamine- or apomorphine-induced "chewing" and "agitation" in rats.* «Arzneimittel-Forschung, *17*, 841-854 (1967); Janssen P.A.J., *The butyrophenone story*. «Discoveries in Biological Psychiatry», 165-179 (1970); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., Lenaerts F.M., Verbruggen F.J., Van Nueten J.M., Schaper W.K.A., *The pharmacology of penfluridol (R16341), a new potent and orally long-acting neuroleptic drug*. «European Journal of Pharmacology», *11*, 139-154 (1970); Janssen P.A.J., Niemegeers C.J.E., Schellekens K.H.L., Lenaerts F.M., Verbruggen F.J., Van Nueten J.M., Marsboom R.H.M., Herin V.V., Schaper W.K.A., *The pharmacology of fluspirilene (R06218), a potent, long-acting and injectable neuroleptic drug*. «Arzneimittel-Forschung, *20* (11), 1689-1698 (1970); Janssen P.A.J., *Recent advances in the treatment of parasitic infections in man*. «Progress in Drug Research», *18*, 191-203 (1974); Janssen P.A.J., *Butyrophenones and diphenylbutylpiperidines*. «Psychopharmacological Agents», *3*, 129-158 (1974); Janssen P.A.J., Niemegeers C.J.E., Marsboom R.P.H., *Etomidate, a potent non-barbiturate hypnotic. Intravenous etomidate in mice, rats, guinea-pigs, rabbits and dogs.* «Archives Internationales de Pharmacodynamie et de Thérapie», *214* (1), 92-132 (1975); Janssen P.A.J., *The levamisole story*. «Progress in Drugs Research», *20*, 347-383 (1976); Janssen P.A.J., Van Bever W.F.M., *Miconazole*. In: *Pharmacological and Biochemical Properties of Drugs Substances 2*, Ed. M.E. Goldberg, American Pharmaceutical Association, Academy of Pharmaceutical Sciences, Washington, pp. 333-354 (1979); Janssen P.A.J., *The four pillars of effective drug research*. «Clinical Research Reviews», *1* (2), 87-89 (1981); Janssen P.A.J., *The pharmacology of specific, pure and potent serotonin 5-HT2 or S2-antagonists*. In: *Advances in Pharmacology and Therapeutics II*, Vol. 4, *Biochemical Immunology Pharmacology*, Eds. H. Yoshida et al., Pergamon Press, pp. 21-33 (1982); Janssen P.A.J., *Potent, new analgesics, tailor-made for different purpose*. «Acta Anaesthesiologica Scandinavica», *26*, 262-268 (1982); Janssen P.A.J., Niemegeers C.J.E., Awouters F., Schellekens K.H.L., Megens A.A.H.P., Meert T.F., *Pharmacology of risperidone (R64766), a new antipsychotic with serotonin-S2 and dopamine-D2 antagonistic properties.* «The Journal of Pharmacology and Experimental Therapeutics, *244* (2), 685-693 (1988); Janssen P.A.J., Awouters F.H.L., *Is it possible to predict the clinical effects of neuroleptics from animal data?* V. *From haloperiod and pipamperone to risperidone*. «Arzneimittel-Forschung», *44* (I), 269-277 (1994).

**Commemoration** – Paul Adriaan Jan Janssen was born on September 12, 1926, in Turnhout, Belgium. He passed away on November 11, 2003, in Rome, while attending the celebration of the 400th anniversary of the Pontifical Academy of Sciences, of which he was a member since 1990. A descendant of a farmer family from the Kempen region, Paul Janssen's father, Dr Constant Janssen, had become a successful general practitioner when, in 1933, he founded a small pharmaceutical company dealing mostly with the marketing of products from a Hungarian concern. After completing his humanities, in 1943, his son Paul decided to follow in his father's footsteps, but in a more creative and ambitious way. He would develop his own pharmaceuticals. To prepare for his chosen goal, the young Paul Janssen decided to study medicine, which he did in three Belgian universities, first at the Facultés Notre-Dame de la Paix in Namur (1943-1945), then at the Catholic University of Louvain (1945-1949) and finally at the University of Ghent, where he graduated in 1951 and continued as a part-time assistant in the pharmacology laboratory of Nobel Laureate Corneille Heymans, with whom he remained associated until 1956. Short stays in the United States and in several European countries completed his training. But he soon cut his academic ties. The desire to be on his own was too strong. As early as 1953, the young doctor entered the family business and embarked on research with a skeleton staff. Only five years later, five new compounds had already been synthesized and introduced into clinical use. By 1961, the company already employed 400 people and had attracted the attention of the American industrial giant Johnson & Johnson. The resulting merger provided Paul Janssen with security, while leaving him an entirely free hand. Under his leadership, the company, which was named 'Janssen Pharmaceutica' in 1964, developed into a world-wide consortium, which now employs more than 4,000 people in Belgium alone and has affiliates in a large number of countries, including the United States, Japan, and China, where it was implanted as early as 1985. The phenomenal success of this enterprise was due to the unique qualities of Paul Janssen, who was, at the same time, a true chemical genius, a man of exceptional vision, a remarkable entrepreneur and an effective and respected leader. Paul Janssen was the holder of more than 100 patents and the author of more than 800 publications. His outstanding merits have been recognized by many awards, membership in a number of academies, including the Pontifical Academy of Sciences, 22 honorary doctorates, and many other national and foreign distinctions. He was elevated to the rank of baron by H.M. King Baudouin in 1990. Paul Janssen was the loving husband of Dora Arts, whom he married in 1957, and the proud father of 5 children and grandfather of 13 grandchildren. In spite of his tremendous scientific and financial achievements, he was modest and tolerant, deeply devoted to his family. He appreciated art, supporting his wife in her collection of pre-Colombian artefacts, and loved music, being himself an accomplished pianist. He leaves the souvenir of a true humanist.

Christian de Duve