



Dr. F. Xavier Bosch conducts **epidemiological research** focusing on **cancers linked to infectious agents**. His main research studies focus on cancer of the liver, the cervix, the skin, vagina, anus, penis and cancers of the head and neck. He has also conducted studies on diet and colorectal cancer and headed a program of implementation and methodological research in cancer registration.

Dr. Bosch's research projects on viruses and cancer have been instrumental in demonstrating the causal role of Human Papilloma Virus (HPV) in cervical cancer and played a catalytic role for the initiation of the first vaccine trials and for the evaluation of HPV tests as screening tools. Dr. F. Xavier Bosch was an early introducer of the now called **molecular epidemiology, by designing studies that integrate novel biological assays at DNA level to assess exposure to viral carcinogens**. Relevant epidemiological field studies have been carried out in

over 35 countries around the world, particularly in Latin America, Africa and Asia. **The final and more practical goal of his research has extended into the application of the aetiological knowledge to the prevention of cancer.**

#### **ACADEMIC AND PROFESSIONAL BACKGROUND:**

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Dr. Bosch graduated in Medicine at the University of Barcelona, in 1972; he specialized in Internal Medicine and Clinical Oncology at the Autonomous University of Barcelona in 1978 and 1982; followed a Master of Public Health by the University of California Los Angeles, US in 1978; and holds a PhD from the Autonomous University of Barcelona (1991).

He served as Epidemiologist at the International Agency for Research on Cancer (Lyon, France 1982-1993) and was a Visiting Scientist at the National Cancer Institute (Washington, USA 2002). He served as Director of the Cancer Epidemiology Research Program the Catalan Institute of Oncology (Catalan Institute of Oncology, ICO) (Barcelona, Spain 1994-January 2015) and is currently Director of International Affairs, Director of the oncologia program and co-Director of the the IARC / Catalan Institute of Oncology Information Centre on HPV and Cancer ([www.who.int/hpvcentre](http://www.who.int/hpvcentre)).

#### **INTERNATIONAL PROFILE:**

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Dr. F.X. Bosch has successfully interacted with international groups interested in epidemiological research and public health issues on virus and cancer. These include the World Health Organization (WHO), the International Agency for Research on Cancer (IARC), the Pan American Health Organization (PAHO), the Program for Appropriate Technology in Health (PATH), the European Research Organization on Genital Infection and Neoplasia (EUROGIN), the Asia Oceania Research Organisation on Genital Infections and Neoplasia (AOGIN), the decision making research group at the Harvard University, the pathology group at the Cambridge University, among other. As a co-principal investigator and organizer of the HPV and Cancer Program at IARC, Dr. F.X. Bosch interacted with scientists in all continents, helped in the implementation of study protocols, assisted with technology transfer and encouraged human mobility efforts. He is a meeting organizer of the International Papillomavirus Congress (HPV 2000) and member of the advisory board of the International Papillomavirus Society (IPV).

#### **EDUCATIONAL PROFILE:**

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As part of the efforts to bridge knowledge with the medical and public health communities, Dr. Bosch initiated and heads since 2001 the international newsletter HPV Today ([www.hpvtoday.com](http://www.hpvtoday.com)),

currently distributing more than 30,000 printed copies in five languages, and a regular electronic version of at least 40,000 subscriptions. The publication evolves in close collaboration with the International Papillomavirus Society.

Dr. F.X. Bosch is the organizer and Director of the distance-learning effort “e-oncologia”, E-oncología is an initiative of the Catalan Institute of Oncology that was set up in 2004 as an International Network of Oncology Centers thanks to a European Union program to boost networking and exchange of education with Latin America. Since 2005, over 13,000 professionals from Spain and Latin America have received training on the e-oncología campus, which has a network of almost 200 lecturers and tutors and over 1500 hours of educational content (44 courses). (<http://www.e-oncologia.org>)

Dr. Bosch also heads the activities of the IARC/Catalan Institute of Oncology Information Centre on HPV and Cancer, a systematic literature review initiative that generates relevant epidemiological and preventive information at country (190 countries) and regional levels. The information is freely available at the website ([www.who.int/hpvcentre](http://www.who.int/hpvcentre)).

As part of the activities, the Information Centre coordinates and prepares systematic literature reviews published as a series of Monographs, regional reports and learning materials on cancer epidemiology and prevention, particularly on the novel options offered by HPV vaccines and the HPV screening technology. In addition to the scientific advances in the field, the reviews include six regional reports (Asia Pacific / Latin America/ Northern Africa / Sub Saharan Africa / Central Europe and central Asia / Israel) prepared to facilitate decision making on cancer prevention at the local level.

These materials are also freely available at:

[http://www.elsevier.com/wps/find/journaldescription.cws\\_home/30521/description#description](http://www.elsevier.com/wps/find/journaldescription.cws_home/30521/description#description).

#### **SCIENTIFIC CONTRIBUTIONS:**

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Dr. F.X. Bosch’s genuine contributions to the cancer epidemiology field include a series of studies that i) demonstrated the causal association of the Human Papillomavirus (HPV) and invasive cervical cancer (Bosch *et al.* 1992, Muñoz *et al.* 1992, Bosch *et al.* 2002), ii) established the co-factor role of the principal environmental exposures among HPV positive women (Moreno *et al.* 2002, Muñoz *et al.* 2002, Plummer *et al.* 2003; Castellsague *et al.* 2002) and iii) set the scene for the identification of the international variation of HPV types and some of its major variants in cervical cancer (Bosch *et al.* 1995, Yamada *et al.* 1997, Walboomers *et al.* 1999, Muñoz *et al.* 2004, de Sanjose *et al.* 2010). These results are widely recognized by the scientific community and include some of the key references in the field (i.e., papers with over 1500 quotations).

Dr. F.X. Bosch was active in the conduct of early studies investigating the role of HBV in liver cancer, and particularly was part of the research team for the Gambia Hepatitis Intervention Study (GHIS), a 40-year project designed to demonstrate the capacity of the HBV vaccines given soon after birth to prevent liver cancer amongst adults in a high risk population in Western Africa (Hall *et al.* 1987). Other contributions in the HBV and liver cancer field include the early assessment of the impact of the polymerase chain reaction (PCR) technology in quantifying the role of HBV and Hepatitis C Virus (HCV) in liver cirrhosis and liver cancer and some studies on dietary exposures to aflatoxin and liver cancer. As invited expert, Dr. F.X. Bosch conducted some major reviews on the role and safety levels of Aflatoxin in the food chain for the WHO / Federal Drug Administration Joint Expert Commission of Food Additives (JECFA) (Henry *et al.* 1999).

#### **SCIENTIFIC PUBLICATIONS AND MAJOR REVIEWS:**

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Dr. Bosch’s publications in relation to virus and cancer amount to over 550 original publications, over 25 monograph books and major reviews, and over 900 scientific communications at medical meetings. The cumulative impact factor to february 2017 is of 1.933,591 with 32.901 citations.

As part of several of the international working parties and review groups, Dr. F.X. Bosch has been actively involved in the edition of publications of the IARC's Monograph Program on the evaluation of carcinogenic risks to humans on HBV and liver cancer (IARC 1994), HPV and cancer (IARC 1995 and IARC 2007), the IARC Scientific Publication Series (Muñoz N, Bosch FX and Jansen M, eds. 1989, Muñoz N, Bosch FX, Shah KV, Meheus A, eds. 1992) and the IARC Cancer Prevention Monograph Series (Bosch FX and Iftner Th 2005). Dr Bosch was an invited editor for the J Natl Cancer Inst. Monograph series on Future directions of HPV and cancer research (Bosch FX, Schiffman M, Solomon D, eds. 2003) and is the promoter and coordinator of the ICO / Elsevier Vaccine Monograph program on HPV and Cancer Prevention (Bosch FX - Guest editor; Vaccine 2006, 2007, 2008 a,b,c, 2012 a,b,c,d).

#### MAJOR PRIZES AND AWARDS:

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- ✚ *Second Prize. MSD price to best epidemiological paper with Spanish first author published in 1994, for the paper entitled "Sexually transmitted agents and cervical neoplasia in Colombia and Spain", by de Sanjosé et al. (Int J Cancer 1994, 56: 358-363) (1995)*
- ✚ *First Prize. MSD price to best epidemiological paper with Spanish first author published in 1995, for the paper entitled: "Prevalence of HPV in cervical cancer: a worldwide perspective" by Bosch et al. (J Natl Cancer Inst 1995; 87: 796-802) (1996)*
- ✚ *First Prize. MSD price to best epidemiological paper with Spanish first author published in 1996, for the paper entitled "Male sexual behavior and HPV DNA: key risk factors for cervical cancer in Spain" (J Natl Cancer Inst 1996; 88: 1060-1067). (1997)*
- ✚ *Third Prize. MSD price to best epidemiological paper with Spanish first author published in 1996, for the paper entitled "Combined analysis of matched and unmatched case-control studies: comparison of risk estimates from different studies" Moreno et al. (Am J Epidemiol 1996; 143: 293-300). (1997)*
- ✚ *Awarded Gold Medal of the Spanish Society for Colposcopy and Cervical Pathology. (2000)*
- ✚ *Awarded Narcís Monturiol Medal for outstanding contribution to the scientific progress (2005)*
- ✚ *Scientific Achievement Award of the American Society for Colposcopy and Cervical Pathology (ASCCP)(2006)*
- ✚ *Distinguished Services Award de la European Research Organization on Genital Infection and Neoplasia (2006)*
- ✚ *Jaume I Award to the best research career (2006)*
- ✚ *XX Award of the Catalan Foundation for Research and Innovation, to the researcher who has contributed significantly to international progress in the discipline of health sciences (2009)*
- ✚ *Award Carlos IV Research in Preventive Medicine and Public Health, National Royal Academy of Medicine, Spain (2009)*
- ✚ *Professional Excellence Award, Barcelona Medical College (2009)*
- ✚ *EDIMSA Award, Doctor of the Year (2009)*
- ✚ *Lilly Award on Biomedical Research (2012)*
- ✚ *The world's Most Influential Scientific Minds: 2014. Thomson Reuters Highly cited researcher.*
- ✚ *Awarded V de Vida Prize of the Asociación Española contra el Cáncer (2015)*
- ✚ *Doctor Honoris Causa Barcelona University (2016)*