

Professor Massimo Palmarini

**Chair of Molecular Pathogenesis
at the Institute of Comparative
Medicine, Faculty of Veterinary
Medicine, University of Glasgow.**

Professor Massimo Palmarini is a veterinary scientist and world-leading expert in viral pathogenesis. His ground-breaking work with retroviruses in mammals has potentially massive significance in understanding the biology of retroviruses that in humans cause AIDS and certain leukaemias.

Born in Rome, Prof Palmarini studied veterinary medicine in Italy before moving to Edinburgh in Scotland, where he completed his PhD through a Marie Curie Fellowship. He did postdoctoral work at the University of California before moving to the University of Georgia for a further four years.

During 2004, Prof Palmarini moved back to Scotland and took up the Chair of Molecular Pathogenesis at the University of Glasgow.

In 2005, his team was awarded a research grant of £800,000 by the Wellcome Trust to study a mechanism which blocks the replication cycle of retroviruses.

Prof Palmarini has been honoured several times during his career, receiving acknowledgement from the Royal Society (Wolfson-Royal Research Merit Award, 2004), the John M. Bowen Award for Excellence in Animal Research (University of Georgia, 2003), and the Pfizer Award for Research Excellence in 2002.



Endogenous retroviruses are present in all mammals but Prof Palmarini and his team are interested in how endogenous retroviruses of sheep interact with related exogenous retroviruses and their host.

He is currently studying sheep, who have around twenty copies of endogenous retroviruses related to a pathogenic retrovirus, known as JSRV – the one which killed the world's first cloned mammal, Dolly the Sheep.

The recent grant from the Wellcome Trust is to study how an endogenous retrovirus, enJS56A1, interferes with pathogenic exogenous retrovirus JSRV to prevent the spread of disease. The specific focus is on “trapping” JSRV within individual cells and preventing them from infecting other cells. ▶



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▶ Prof Palmarini says, "Like all viruses, retroviruses insert their genetic material into host cells and then force the host to make copies of the virus. Unlike other viruses however, retroviruses permanently insert a copy of their genes into the genome of cells they invade."

"Every sheep on the planet has retroviruses that are present in the genome like any other gene. In fact, all animal species, human included, have retroviruses that are genetically inherited. They are benign or crippled viruses that do not harm their host. In fact, endogenous retroviruses could have helped their host during evolution."

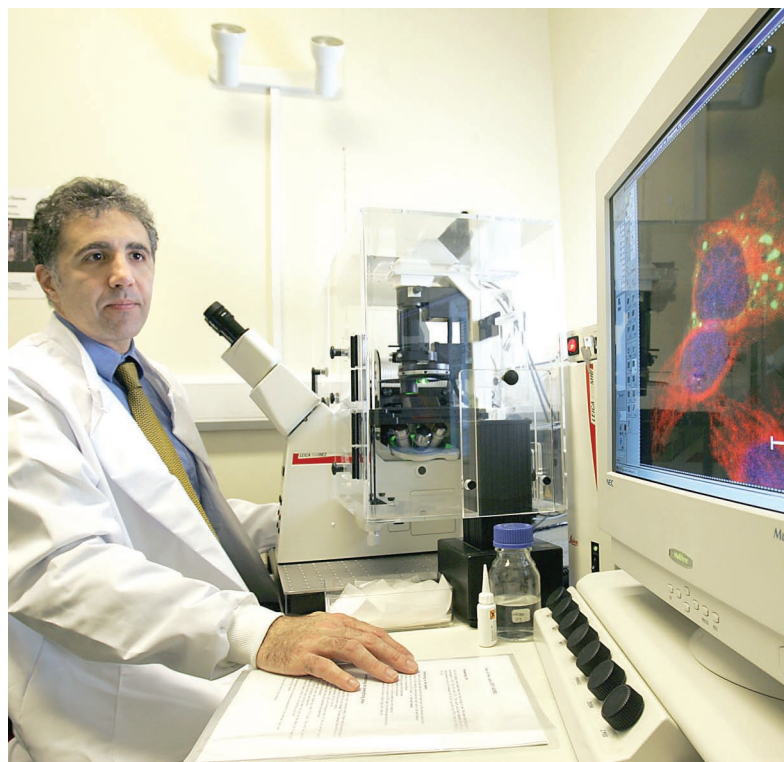
His current work has interesting implications for anti-retroviral therapies, through the development of "sticky particles" which effectively prevent the virus from exiting single cells and spreading to others.

By shedding light on how the retroviral particles normally exit and invade other cells, Prof Palmarini's team hope to identify ways to inhibit the spread of retroviruses responsible for currently hard-to-treat illnesses such as HIV and certain cancers.

Prof Palmarini works within the Institute of Comparative Medicine at the University of Glasgow's Faculty of Veterinary Medicine, which he describes as "state of the art". He jokingly says that he believes the maxim that "your parents decide where you are born, and your wife decides where you die" - his wife is Scottish - but adds that he is very happy to be working again in Scotland.

Unfortunately, retroviral-induced lung cancer in sheep is an endemic disease in Scotland and Prof Palmarini is optimistic that his work may offer new ways of tackling chronic diseases of this sort.

Key to the success of this work is the sharing of knowledge between veterinary research and human medicine and Prof Palmarini is quick to acknowledge the importance of ongoing dialogue between the vet schools in Glasgow and Edinburgh and clinical centres of excellence such as the specialist Beatson Oncology Centre in Glasgow.



The life science community in the West of Scotland is a close one which encourages the sharing of information. Understanding of the mechanisms of disease can come from either veterinary or human research; with the common aim being the search for greater overall understanding.



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