Haematology and Blood Transfusion Vol. 29
Modern Trends in Human Leukemia VI
Edited by Neth, Gallo, Greaves, Janka

Introduction for P. H. Duesberg

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It is time now to introduce my friend Peter Duesberg. Where do I begin? At NIH, Peter is sometimes known as the battling bulldog. He gets his teeth into something and 1 year, 5 years, 10 years, 20 years later those teeth are still sunk in. I should be serious a bit, shouldn't I? Peter, of course, was born here in Germany. He was educated at Tübingen and he came to the United States 20 years ago at the age of 27. I've known Peter now for about 15 years. When I first met him, he was already doing molecular virology, and I was already involved in retroviruses. Peter first began work on the molecular virology of parainfluenza and influenza viruses. He was the first to show that parainfluenza had a singular RNA genome and that influenza virus had multiple RNAs. This was the first time a virus was shown to have a segmented genome, thus explaining the rather distinctive ability of that virus to undergo frequent recombination by reassortment.

He began working with retroviruses around 1966, and he was among the first, or perhaps even the very first, to characterize their structural proteins. He was involved in the first work that provided a genetic map of retroviruses. Surely, this is one of the most important of his many biochemical contributions, that is, the order of the genes, *gag, pol, env,* and some aspect of the nature of their nucleotide sequences. We now know that this fundamental result is applicable to all retroviruses, including HTLV-I, II, and III. So, the application of biochemical methods to the mapping of retroviral genes was first and primarily carried out by Peter. Some of this work also ultimately became critical to the taxonomy of retroviruses.

He carried out the first restriction endonuclease mapping of a provirus. This was in the late 1970s. He was the first, or one of the first, to demonstrate repetitive sequences at the ends of the proviruses, which were the beginning of our understanding of the LTRs that we talk about routinely today. He was involved in the first publications which demonstrated that these viruses replicate via a circular proviral DNA form. After reverse transcriptase was discovered (it was about that time I began to know Peter fairly well), Peter did some of the early characterization of this DNA polymerase. His publications with his colleagues were the first reports showing that reverse transcriptase utilized a primer mechanism, not just a template, but a primer to initiate DNA synthesis, and he was the first to show that the primer was a 4 S molecule. But actually, although listing this as one of his major accomplishments, I remember Peter telling me when he did those experiments he didn't know what a primer actually was!

The next major phase of his work involved his classic studies with Peter Vogt; Vogt the biologist, Peter the biochemist. This really led to the first molecular and genetically defined transforming gene, the *sarc* gene. A great deal of this brilliant and original work, the real critical aspects, was

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carried out by this extraordinarily effective collaboration through the 1970s. Of course, Peter also worked on a number of other *onc* genes, describing several for the first time, mostly in avian systems but also in murine systems. Most recently this has been in collaboration with Takas Papas at NCI.

These are some of Peter's contributions. There are many more. However, there are things about him that stand out as much as his science. Peter Duesberg is a man of extraordinary energy, unusual honesty, enormous sense of humor, and a rare critical sense. This critical sense often makes us look twice, then a third time, at a conclusion many of us believed to be foregone. However, his critiques are sometimes a major problem for the casual observer. When is he truly debating? When is he only being the devil's advocate? When is he being the devil himself? The casual observer is also often at a loss to determine which of the many weapons he possesses he is using. Peter, it is hard for us to tell when you are using your machine gun or your slingshot, or simply exercising your vocal cords. In any event you are an extraordinary scientist, a man who makes life more interesting and pleasurable to many of us; and it is my good fortune to know you as a friend.