

THE EXTRAORDINARY DEVELOPMENTS IN HUMAN EXPOSURE ASSESSMENT SINCE THE DIOXIN MEETING IN BAYREUTH IN 1990: WHAT A PLEASURE TO HAVE BEEN (AND STILL BE) ASSOCIATED WITH SO MANY GREAT SCIENTISTS PURSUING NEW FRONTIERS

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Introduction

Just prior to the 1990 dioxin meeting in Bayreuth, three validated blood dioxin methods were published in the scientific literature by Donald Patterson et al (serum), Martin Nygren et al (plasma) and Olaf Papke et al (whole-blood) with low enough detection limits to measure normal background levels of dioxin in human blood.

Results and discussion

What emerged over the next 22 years were a series of issues that needed to be addressed:

- 1) Lower detection limits for smaller sample sizes.
- 2) Enhanced quality control/quality assurance procedures.
- 3) The importance of an internal human dose measurement.
- 4) Newer matrices for POPs measurements in addition to adipose tissue and blood such as: urine, milk, saliva, amniotic fluid, meconium, placenta, cord tissue, cord blood, feces, and semen.
- 5) Analytical methods developed for these newer matrices.
- 6) Methods developed for new and emerging environmental contaminants such as PAHs, alkylated and nitrated PAHs, non-persistent pesticides, PCNs, PBDEs and other BFR chemicals, halogenated alkanes, fluorinated chemicals, brominated dioxins and furans, BPA, PEMs, parabens, triclosan, phenols, toxaphenes, as well as metabolites of some of these chemical classes.
- 7) Higher throughput for large scale epidemiologic and environmental studies.
- 8) Automated analytical data handling procedures and many others.

Some of the advances in these areas that the author has had the pleasure to be involved in over the past 22 years since Bayreuth and lessons learned will be discussed.