Hormones, Intrauterine Health and Programming
Research and Perspectives in Endocrine Interactions

J.R. Seckl  Y. Christen (Eds.)

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Hormones, Intrauterine Health and Programming
In the last two decades a plethora of studies have extended the classical genes ×
adult environment paradigm of disease aetiology to include early life development
(genes × development × environment). An early and powerful example comes
from the epidemiological studies of Barker and colleagues linking low birth weight
(a rather blunt marker of “something went wrong in utero”) with a substantially
increased risk of cardio-metabolic and neuropsychiatric disorders in later life.
These findings have spawned a host of human observational and pre-clinical
mechanistic studies to understand the link between the pre-natal environment and
the programming (the hard wiring of structure, form and function) that might
underpin later pathogenesis. A number of factors in the early environment have
been invoked as causal including maternal malnutrition, inflammation, hypoxia and
stress, in particular its glucocorticoid hormone mediators.

In this volume which gathers the contributions of the Colloque Médecine et
Recherche organized by the Fondation IPSEN in December 2012 in Paris we
address in particular the role of hormones and their links with other maternal
environmental mediators in developmental programming. The crucial nature of
the placenta as an interface and target between maternal and foetal environments is
addressed. Emphasis is on the emerging science of epigenetics as a potential
explanation for how environmental events that occur during brief windows of
development may exert effects that impact upon somatic cells through many rounds
of mitosis for much of the life-span of the subsequent organism. Some debate is also
entered into on the role of inter-generational transmission of phenotype and
epigenotype, at least for one further generation, a subject of topical interest beyond
the immediate field and of substantial controversy.

The overall emphasis is on latest findings presented by global experts addressing
from different viewpoints an area of rapidly emerging importance to health, well-
being and scientific understanding of some of the biggest biomedical challenges
facing our species.

Edinburgh, UK  
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Paris, France  
Yves Christen
The editors wish to express their gratitude to Mrs. Mary Lynn Gage for her editorial assistance and Mrs. Sonia Le Cornec for the organization of the meeting.
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