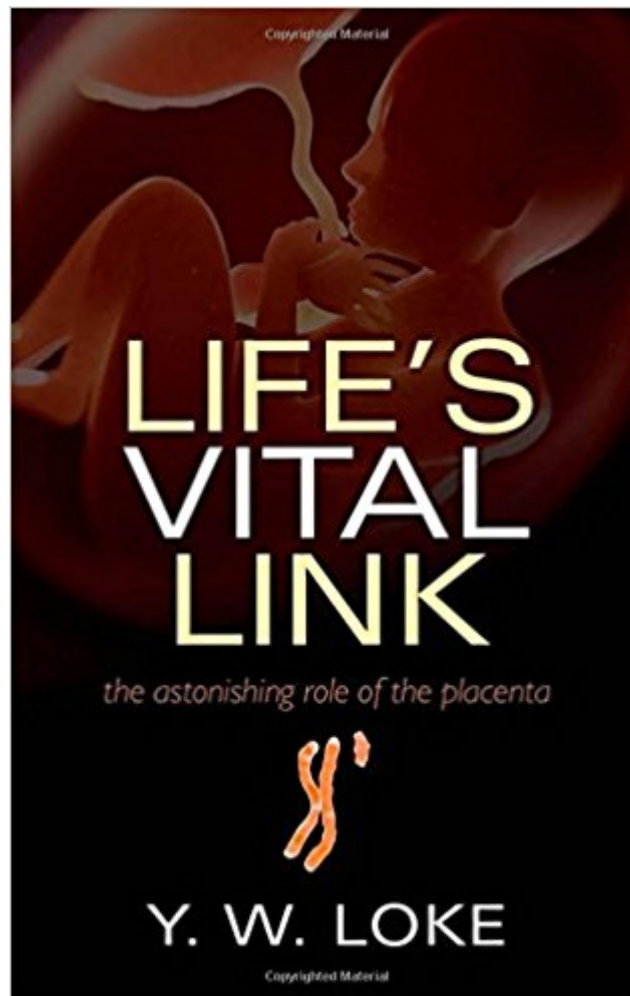




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# Life's Vital Link: The Astonishing Role Of The Placenta



## Synopsis

The development of the placenta was a pivotal event in evolution. Without it, we would still be laying eggs instead of giving birth to live offspring. It represents the critical link between the foetus and the mother, but its character is extraordinary -- it is, in effect, a foreign tissue that invades the mother's body. Compared to many other animals, the human placenta represents a particularly aggressive body. But how is it managed and controlled? How did such an organ evolve in the first place? And why is it tolerated by the mother? Y.W. Loke explores the nature of the placenta and what it can tell us about evolution, development, and genetics.

## Book Information

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## Customer Reviews

Despite being one of the body's most short-lived organs—arising at conception and dying at the birth of the baby—the placenta deserves to be considered among the most complex and important parts of the human body, argues Loke (Human Implantation, co-author) in this surprisingly delightful book. During its lifetime, the placenta fills many roles: it anchors the developing fetus in the womb; serves as its lungs, kidneys, and digestive tract; transfers waste products from the uterus to the mother; and produces hormones that manipulate maternal behavior in a way that benefits the fetus. Loke, an emeritus professor of reproductive immunology at the University of Cambridge, argues that the placenta has much more to offer in addition to these fascinating functions. Understanding placental growth patterns may shed light on the etiology of cancer; it could also help

doctors combat the problem of tissue rejection in organ transplant patients. The placenta is even powerful enough to overcome the effects of time, in a way that post-menopausal women can bring a previously fertilized egg to term thanks to the placenta's ability to control endocrine levels. Accessible enough for a general readership, Loke's work provides the key to a truly unique world. 20 b&w illus. & glossary. (Aug.)

"This fine book brings attention to an often-overlooked and discarded body organ, the placenta. Difficult terms are defined, acronyms are spelled out, and the author reviews and summaries. Popular and/or controversial topics [are] briefly discussed. Very helpful illustrative figures, a glossary, and chapter endnotes support the text." -E.R. Paterson, emeritus, SUNY College at Cortland, CHOICE

For a book that is of this caliber...you can't beat the price.. VALUABLE information here. Very medical model mode and a bit pretentious yet extremely informative!!!

Highly recommended if you work in OB or just want to learn more about the amazing placenta.

Out standing book, an awesome amount of information

Professor Y.W. Loke has produced a deeply fascinating, clearly explained, yet not in any way insulting-in-its-simplicity, erudite, beautifully expressed book about the mysterious placenta. Mysterious because so many oppositional questions about it still remain unanswered. In fact, opposition appears to be the name of the placenta's game. As Loke points out, even biologists have expressed themselves unsure about the origins of the placenta - produced by mother, or baby? (Baby) And what exactly is it? Loke traces the evolutionary development of reproduction, from water living animals such as fish and amphibians who produce eggs in water, to the need for hard shelled eggs on land, into mammalian development - and some odd mix and match half way there of some other species. He also shows that there is wide variation in the types of placentas in mammals, from those which are not closely embedded in the uterus (horses) to those like humans (and mice and armadillos amongst others) where the placenta embeds deep into the womb lining, and the mother's body needs to maintain a fine balance to avoid the over-invasive embedding of a gone-feral placenta! This aspect gives rise to some interesting points of study and perhaps extending understanding about the behaviour of other type of cells which can take over and go feral

- cancer cells. In fact, he shows how there is really a blurred line between the behaviour of a particular layer of cells at the placenta border, and cancer cells. This goes further, even suggesting a rationale for the development of cancer cells. The process of embedding and vascularisation, so necessary for the development of mammalian life, having more deadly effects when these cellular programmes occur outside the uterine environment of a pregnant woman. 'Behaviour' in one place may be inappropriate in another! Within the interface where the newly fertilised ovum reaches its 9 month home, the 'go, proliferate, embed' codes for the trophoblast (what will be placental cells) meet the 'whoa, no further!' codes of the uterine decidua cells. In this place, embed codes and resist codes have a fine balance. In other areas codes for resistance may not have developed, because, normally, there was no need. He throws the gauntlet down for those who assume that homo sapiens is the most recent, therefore most developed and advanced species, and that the way WE do things (including placentas!) is the best way, and shows that of the 3 basic types of placenta, the deeply embedded probably was the earliest to evolve, (some very very early mammals had our type of placenta) whereas the more superficially attached to the womb placental types, in hoofed animals, is a more recent evolution. Horses rule! And here is a fascinating within-the-womb story of the battle of the sexes. Genes from the father promote the growth of the placenta, whilst maternal genes inhibit that growth. Without the father's genes promoting the placenta, the foetus would not be 'fed' by the mother's blood supply and nutrients. But without maternal restraint the mother would not be able to conserve resources for her own survival. Or, as Loke puts it, the mother restricts the 'predatory' activity of the placenta. I could go on and on and even more on about this thought provoking and absolutely fascinating book, which for me, went far further than being purely a book about biology, and made me consider how all sorts of oppositional drives and conundrums are expressed in this mysterious structure, which, the more I read, seemed to be both itself, and inherently also symbolic and metaphorical. Self and other, selfishness and altruism, dependence and independence, generous surrender and despotic plunder, were all ideas which were being physicalized here. Loke fascinatingly reminds us, too, that whilst the red-in-tooth-and-claw aggressive survival of the fittest idea of evolution has been the version most of us have for evolution (the version beloved by capitalism and all who seek to justify aggressive, competitive behaviour) that co-operation, mutuality and assimilation has ALWAYS been the equal and opposite drive. Without co-operation and mutuality not only could mammalian life not have happened - but any life as we know it. Plants, without which animal life could not have happened, owe their ability to photosynthesise to the fact that chloroplasts were 'absorbed and assimilated' bacteria which were able to photosynthesise. Mitochondria, the generators which convert oxygen

into energy, within animal cells (including ours!) were originally oxygen breathing bacteria which colonised primitive organisms. Never mind cooperation between us-and-other-species - every species (including each individual within a species) is evidence of co-operation. What we regard as 'self' is always, also, other. It may seem as if I have gone off into other personal, philosophical agendas here, rather than stayed within the confines of this book. Whereas, in truth, this is a large part of the power and brilliance of this book - the fact that what it is 'about' inevitably pulls the reader into challenge and reflection and wider territories. A final little snippet before I hopefully have induced the intrigued potential reader to get the book for themselves and make their own absorbed journey, is this: In the last 80 odd years, a new problem in childbirth has surfaced, a condition called 'placenta accreta' whereby the placenta becomes so firmly adhered to the uterus that it can't be removed at birth. The complication that then ensues is severe after-birth bleeding. And the reason for this new, growing problem appears to be the increased fashion for caesarians - the natural lining of the womb inhibits the placenta from embedding too deeply into the womb, however, the scar tissue over previous Caesarians, inhibits the formation of that part of the womb lining, the decidua, which prevents the placenta from invading the uterus too deeply. "Prior Caesarian section is now recognised as the most important risk factor for placenta accrete, putting it into the category of an 'iatrogenic disease - a condition that is the unfortunate side-effect of a clinical procedure'. I cannot though deny that some parts of the book will take close and concentrated reading - I have some familiarity with, an deep interest in, biological science, without being a scientist, just a very interested layperson with some background. Nevertheless there were lots of times when I had to read pages several times. This is NOT a problem of Loke's writing, he explains extremely well, but inevitably, some information, for example about the immune response, and genomic imprinting which may be linked with sex determining (X or Y) from sperm, is extremely complicated! And when he launched into the variation in cytokines, autocrines, paracrines with their various abbreviations, LIF, TGF-beta and the like I was whimpering a little! I only put this in as SOME of the material is very dense indeed. If you want to know merely the 'why' of it all, the grand overview, this is clear, readable and easy to grasp. But make NO mistake the 'wherefore' gives detail that might need a greater knowledge of cellular biology than most laypersons - even those with a strong interest in the field - have. However, a fabulous book, for those who like well written science, which takes the reader on a wonderful journey! I received this as a review copy from Vine UK

All around good product and the customer service is awesome. great, as the price. the best seller. i love it so much,

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