

## **Stuart Pivar ILAOL introduction**

I would like to introduce our first speaker, Stuart Pivar, Director of the Synthetic Life Laboratory in New York, an inventor, author, art historian, and art collector. He has received a B.Sc degree in chemistry from Hofstra University, in Long Island, New York. He founded Chem-Tainer Industries in 1959, to produce bulk-storage plastic containers, and is still Chairman of the company. Together with the famed artist Andy Warhol, he founded the New York Academy of Art in 1979. More recently Pivar has turned his attention to a number of scientific pursuits, funding AIDS research, regenerative medicine, and origin-of-life research.

Stuart Pivar is the author of two books, “Lifecode: The Theory of Biological Self Organization”, published in 2004 and “On the Origin of Form: Evolution by Self-Organization” published in 2009. The latter book presents a new account of evolution and the origin of life, based on the premise that the body form of any species is encoded **not** in the DNA but in the patterned structure of the primordial germ plasm - the universal predecessor of the egg.

Pivar’s theories have sustained several lines of criticism. One relates to the lack of similarity of the hand-drawn developmental sequences to experimental observations in embryology. Another is the notion that such sequences of illustrated structural changes are without predictive power and also cannot be falsified. A third is the need to examine the realism of the proposed egg surface ultrastructures such as membrane bands and segments. The last is the requirement for an explicit mechanism by which the presumed single-cell

ultrastructures might direct the arrangement of billions of cells in the developing embryo. Most likely, he is going to address these very issues in what follows.

This year, Stuart has published a paper entitled “The origin of the vertebrate skeleton” in the International Journal of Astrobiology. Stuart has proposed to present this paper and his ideas in general at ILASOL. Our acceptance reflects the prolog of Pivar’s “On the Origin of Form”. This is written by Mark McMEnamin, professor of geology at Mount Holyoke College, South Hadley, Massachusetts, whose main research interests are early fossil life. He writes:  
*(read only red-underlined text)*

### *Preface*

MARK A. S. McMENAMIN, PhD

Scientific controversy is an inevitable and even healthy aspect of scientific study. However, when the rancor generated by competing personalities in science gets too intense, results proceeding from the weaker party can be suppressed or even virtually eliminated, at great loss to the conduct of science. On several occasions I have had to rescue important scientific results from obscurity, or even complete elimination, the result of this type of scientific conflict.

Some of the transitional stages shown by Pivar will appear unfamiliar to embryologists, and may thus invite criticism of the model similar to the way that Haeckel has been criticized for his inaccurate drawings of embryos. I urge readers to suspend disbelief on this matter, however, for the purposes of full evaluation and honest scrutiny. We can't afford to wait a century and a half this time, as was the case with Koene's atmospheric science. Each of Pivar's sub-models needs to be evaluated and tested from the perspective of adult morphology, fossil form, embryological change as modified by condensation, self-organization where appropriate, and finally, and all importantly, morphogenetic field analysis.

Let's listen to Stuart Pivar's talk without interruption; there is a longer discussion period at the end of his 30 minutes talk.