

Origin of Life

BIOLCHEM 713 - Emerging Areas of Biochemistry – a Mini

Course consisting of seminars & discussions with the speakers

Fall 2017 – 1 credit*

Discussion: 10:30 AM – 11:30 AM, 4560C MSRB 2

Department Seminar: 12:00 PM – 1:00 PM, North Lecture Hall, Med Sci II

Course Director: Dr. Bruce Palfey (brupalf@umich.edu)

Seminars open to the University Community; discussions for registered students only

5 Sep: Introductory Discussion

12 Sep: Ramanarayanan Krishnamurthy, Scripps Research Institute

Origins of Life – Giving Rise to Biological Chemistry from Pre-Biological Chemistry

10 Oct: David Deamer, University of California, Santa Cruz

Hydrothermal fields, not vents: A terrestrial origin of life

17 Oct: Loren Williams, Georgia Tech

Seminar Title TBA

24 Oct: Charles Carter, University of North Carolina

Interdependence, Reflexivity, Fidelity, Impedance Matching, and the Evolution of Genetic Coding

14 Nov: Burckhard Seelig, University of Minnesota

Seminar Title TBA

*To register, email egoodwin@umich.edu for course permission.

Inland hydrothermal site subject to cycling

Dehydration and deposition of protocell contents

Survival of stabilized protocell with system "A"

Disrupt less stable with system "B"

Single cycle

Anhydrous surface phase

Dehydration

Rehydration

Hydrated bulk phase

Stepwise evolution of systems of functional polymers

Multiple cycles

System "A"

System "B"

Hydration of molecule



cells



Loop



4 Zn²⁺ finger



Biology

Specificity

Higher

Moderate

Fidelity

RNA World
1800 Nucleotides
Multiple Universes
- E. Koonin

