



## Curriculum vitae Standardized form

Total number of pages: **48**

Name: **KEPA RUIZ-MIRAZO**

Research career summary: **Full-time researcher (IDP) at the UPV/EH**  
**Sexenios** (positively evaluated 6-year periods): **3** [last: 2012-17]  
**Total number of citations:** **899** (WoS) / **1902** (Google Scholar)  
**h-index:** **14** (WoS) / **21** (Google Scholar)  
**Habilitation for Full Research Professor** (Unibasq, April 2018)

Date: **Dec 4<sup>th</sup>, 2018**

- During the evaluation process, the applicant could be required to expand and justify the information here contained.

## PERSONAL DATA

Family name: **RUIZ MIRAZO**

Forename: **KEPA**

ID/Passport no: **PAA885074**

Date of birth : **09/DEC/1970**

Gender: **MALE**

Nationality: **SPANISH**

## CURRENT PROFESIONAL POSITION

Institution: **UNIVERSITY OF THE BASQUE COUNTRY (UPV/EHU)**

Faculty, School or Institute: **EDUCATION, PHILOSOPHY AND ANTHROPOLOGY (HEFA)**

Department: **LOGIC AND PHILOSOPHY OF SCIENCE**

Address: **AVDA. TOLOSA 70, DONOSTIA-SAN SEBASTIAN**

Post Code: **20018** Province: **GIPUZKOA**

Country: **SPAIN**

Telephone (indicate prefix, number and extension): **+34 943 015628 / +34 946 018005**

E-mail: **kepa.ruiz-mirazo@ehu.eus**

Field of study (UNESCO codes): **720501-720102**

Professional status: **STAFF RESEARCHER (IDP)**

Start date: **01/OCT/2012**

Administrative status

☒ Permanent Staff

☐ Hired on contracts

☐ Acting

☐ Fellowship holder

☐ Others specify:

Full-time ☒

Part-time ☐

**Statistical data:** total number of citations: **899** (WoS) / **1902** (Google Scholar)  
(Nov. 2018) h-index: **14** (WoS – Thomson Reuters) / **21** (Google Scholar)  
number of publications in top (WoS – JCR-- **Q1**) journals: **16**

## PRESENT RESEARCH AREA/INTERESTS

Brief summary (key words).

**Origins of Life, Complex Systems, Protocell modelling, Synthetic Biology, Artificial Life, Systems Chemistry, Biophysics, Bioenergetics, Minimal Cell, Systems Biology, Theoretical Biology, Philosophy of Biology, Philosophy of Science.**

## ACADEMIC BACKGROUND

| Bachelor   | Centre   | Date              |
|--|--|-------------------|
| <b>PHYSICS (SOLID STATE PHYSICS, 5 years)</b>                      | <b>UNIVERSITY OF THE BASQUE COUNTRY (UPV/EHU)</b>          | <b>JULY 1994</b>  |
|  |  |                   |
| <b>Masters: EUROPEAN STUDIES ON SOCIETY SCIENCE AND TECHNOLOGY</b> | <b>NOTRE DAME DE LA PAIX (NAMUR-BELGIUM) &amp; UPV/EHU</b> | <b>SEPT. 1995</b> |

  

| Ph.D.                                      | Centre  | Thesis Supervisor    | Date             |
|--|---|----------------------|------------------|
| <b>SCIENCES (PHYSICS, COMPLEX SYSTEMS)</b> | <b>UNIVERSITY OF THE BASQUE COUNTRY (UPV/EHU)</b> | <b>ALVARO MORENO</b> | <b>NOV. 2001</b> |

**PAST SCIENTIFIC EXPERIENCE (\*)**

| <i>Position</i>                        | <i>R&amp;D Centre</i>                       | <i>Institution (**)</i>     | <i>Start date</i> | <i>End date</i>   |
|--|---|-----------------------------|-------------------|-------------------|
| <b>INTA-POSTDOC FELLOWSHIP</b>         | <b>CENTRE OF ASTROBIOLOGY (CAB)</b>         | <b>INTA-CSIC</b>            | <b>01/04/2002</b> | <b>16/09/2002</b> |
| <b>LECTURESHIP</b>                     | <b>D. BASIC SCIENCES</b>                    | <b>MONDRAGON UNIVERSITY</b> | <b>17/09/2002</b> | <b>01/03/2003</b> |
| <b>FPI-POSTDOC FELLOWSHIP</b>          | <b>INSTITUTE FOR POLYMERS</b>               | <b>ETH-Zurich</b>           | <b>01/03/2003</b> | <b>01/10/2003</b> |
| <b>LECTURESHIP</b>                     | <b>D. BASIC SCIENCES</b>                    | <b>MONDRAGON UNIVERSITY</b> | <b>01/10/2003</b> | <b>01/01/2004</b> |
| <b>FPI-POSTDOC FELLOWSHIP</b>          | <b>D. BIOLOGY</b>                           | <b>UNIV. ROMA TRE</b>       | <b>01/01/2004</b> | <b>01/03/2005</b> |
| <b>HPC-EUROPA FELLOWSHIP</b>           | <b>D. CHEMISTRY</b>                         | <b>UNIV. BARI (ITALY)</b>   | <b>01/09/2005</b> | <b>01/12/2005</b> |
| <b>POST-DOC FELLOWSHIP GV (MOD. E)</b> | <b>D. LOGIC &amp; PHILOSOPHY OF SCIENCE</b> | <b>UPV/EHU</b>              | <b>01/10/2005</b> | <b>31/12/2006</b> |
| <b>RAMÓN y CAJAL RESEARCH FELLOW</b>   | <b>D. LOGIC &amp; PHILOSOPHY OF SCIENCE</b> | <b>UPV/EHU</b>              | <b>01/01/2007</b> | <b>31/12/2011</b> |
| <b>TEMPORARY PDI RESEARCHER</b>        | <b>D. LOGIC &amp; PHILOSOPHY OF SCIENCE</b> | <b>UPV/EHU</b>              | <b>01/01/2012</b> | <b>30/09/2012</b> |

(\*) The information contained in this chart will be used to verify the placement requirements, according to the Call.

(\*\*) If the Institution is a "joint centre", you should specify all the centres involved in running it.

**LANGUAGES (N = NORMAL, G = GOOD, P = PERFECTLY)**

| <i>Language</i>         | <i>Speaking</i> | <i>Reading</i> | <i>Writing</i> |
|-------------------------|-----------------|----------------|----------------|
| <b>ENGLISH</b>          | <b>P</b>        | <b>P</b>       | <b>P</b>       |
| <b>ITALIAN</b>          | <b>N</b>        | <b>G</b>       | <b>N</b>       |
| <b>FRENCH</b>           | <b>N</b>        | <b>G</b>       | <b>N</b>       |
| <b>BASQUE (EUSKERA)</b> | <b>P</b>        | <b>P</b>       | <b>P</b>       |
|                         |                 |                |                |

## PARTICIPATION IN RESEARCH PROJECTS

**NOTE:** As **full member/researcher** after 2001 and as **Student** (PhD Grant holder) in the previous years.

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PROJECT TITLE: **Protometabolic pathways: exploring the chemical roots of systems biology**  
(ProtoMet – Role:UPV/EHU Main Investigator)

FINANCING ENTITY: **EUROPEAN COMMISSION – Marie Curie Training Network**  
(H2020 – MSCA – ITN – 2018; Grant Agreement Ref.: 813873)

FROM: **2018** TO: **2022**

NETWORK COORDINATOR: **SHEREF MANSY**

AMOUNT (total): **2.174.000€** --- AMOUNT (UPV/EHU): **250.000€**

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PROJECT TITLE: **Identity in interaction – ‘inter-identity’ (Identidad en interacción)**

FINANCING ENTITY: **MINECO – Spanish Government (FFI2014-52173)**

FROM: **01/01/2015** TO: **31/12/2018**

PRINCIPAL INVESTIGATORS: **ARANTZA ETXEBERRIA & KEPA RUIZ-MIRAZO**

AMOUNT: **60.500€**

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PROJECT TITLE: **Origins and Evolution of Life on Earth and in the Universe**  
(Role: MC Member from Spain)

FINANCING ENTITY: **EUROPEAN COMMISSION -- COST- Action TD 1308**

FROM: **2014** TO: **End of 2018**

PRINCIPAL INVESTIGATOR: **MURIEL GARGAUD**

AMOUNT (approx.): **450.000€**

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PROJECT TITLE: **Stabilité et variation dans les systèmes biologiques: une enquête épistémologique et théorique**

FINANCING ENTITY: **Université Paris 1 Panthéon - Sorbonne**

FROM: **01/09/2014** TO: **End of 31/08/2016**

PRINCIPAL INVESTIGATOR: **MATTEO MOSSIO**

AMOUNT: **18.000€**

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PROJECT TITLE: **Subvención Grupos de Investigación del Sistema Universitario Vasco**

FINANCING ENTITY: **GV (Basque Government). IT590-13.**

FROM: **01/01/2013** TO: **31/12/2018**

PRINCIPAL INVESTIGATOR: **ALVARO MORENO**

AMOUNT: **226.000€**

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PROJECT TITLE: **Emergence and Evolution of Complex Chemical Systems**  
(Roles: MC Member from Spain and STSM Coordinator)

FINANCING ENTITY: **EUROPEAN COMMISSION -- COST- Action CM 1304**

FROM: **2013** TO: **End of 2017**

PRINCIPAL INVESTIGATOR: **SIJBREN OTTO**

AMOUNT (approx.): **450.000€**

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PROJECT TITLE: **Autonomía y niveles de organización.**

FINANCING ENTITY: **MINECO – Spanish Government (FFI2011-25665)**

FROM: **01/01/2012**

TO: **31/12/2014**

PRINCIPAL INVESTIGATOR: **JON UMEREZ (initially: ALVARO MORENO)**

AMOUNT: **86.000€**

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PROJECT TITLE: **Subvención Grupos Consolidados (Filosofía de la Biología)**

FINANCING ENTITY: **GV (Basque Government). IT505-10.**

FROM: **01/01/2010**

TO: **31/12/2012**

PRINCIPAL INVESTIGATOR: **ARANTZA ETXEBERRIA**

AMOUNT: **61.000€**

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PROJECT TITLE: **La organización biológica: entre el mecanicismo y la autonomía**

FINANCING ENTITY: **MICINN – Spanish Government (FFI2008-06348-C02-01)**

FROM: **01/01/2009**

TO: **31/12/2011**

PRINCIPAL INVESTIGATOR: **KEPA RUIZ-MIRAZO**

AMOUNT: **48.400€**

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PROJECT TITLE: **Systems Chemistry**

FINANCING ENTITY: **EUROPEAN COMMISSION -- COST- Action CM0703**

FROM: **2008**

TO: **End of 2011**

PRINCIPAL INVESTIGATOR: **GÜNTER VON KIEDROWSKI / SIJBREN OTTO**

AMOUNT (approx.): **400.000€**

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PROJECT TITLE: **Aspectos filosóficos de la organización biológica y cognitiva desde la biología y la bioética de sistemas.**

FINANCING ENTITY: **Basque Government ('CONSOLIDATED GROUPS') -- IT-250-07**

FROM: **01/01/2007**

TO: **31/12/2009**

PRINCIPAL INVESTIGATOR: **ALVARO MORENO**

AMOUNT: **50.000€**

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PROJECT TITLE: **Información, Autonomía y Sistemas. Elementos epistemológicos y éticos para una perspectiva organicista en biología.**

FINANCING ENTITY: **MEC – Spanish Government (HUM2005-02449)**

FROM: **31/12/2005**

TO: **31/12/2008**

PRINCIPAL INVESTIGATOR: **ALVARO MORENO**

AMOUNT: **45.000€**

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PROJECT TITLE: **Organismo, Evolución y Cognición. Aspectos filosóficos.**

FINANCING ENTITY: **UPV/EHU (ADVANCED GROUPS SUPPPORT) 9/UPV 00003.230-15840/2004**

FROM: **2005**

TO: **End of 2006**

PRINCIPAL INVESTIGATOR: **ARANTZA ETXEBERRIA**  
AMOUNT: **19.000€**

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PROJECT TITLE: **Stochastic simulations of proto-cellular self-assembling systems**

FINANCING ENTITY: **EUROPEAN COMMISSION -- HPC-EUROPA (RII3-CT-2003-506079)**  
FROM: **2005** TO: **2006**  
PRINCIPAL INVESTIGATOR: **FABIO MAVELLI**

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PROJECT TITLE: **Functionalized self-reproducing vesicles as precursors for early cells.**

FINANCING ENTITY: **EUROPEAN COMMISSION -- COST- Chemistry Action D27**  
FROM: **2003** TO: **2007**  
PRINCIPAL INVESTIGATOR: **PIER LUIGI LUISI**

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PROJECT TITLE: **Interactions between proteins and liposomes**

FINANCING ENTITY: **SWISS FEDERAL GOVERNMENT**  
FROM: **2003** TO: **2004**  
PRINCIPAL INVESTIGATOR: **PIER LUIGI LUISI**

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PROJECT TITLE: **Identidad e individuación en biología y vida artificial**

FINANCING ENTITY: **UPV/EHU -- 003.230-HA079/99**  
FROM: **1999** TO: **2000**  
PRINCIPAL INVESTIGATOR: **ARANTZA ETXEBERRIA**  
AMOUNT: **1.000.000 pts**

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PROJECT TITLE: **Ciencias de la complejidad y simulaciones artificiales: La repercusión de la VA en algunos aspectos de la teoría de la evolución contemporánea**

FINANCING ENTITY: **DIGCYT (MEC) PB95-0502**  
FROM: **1996** TO: **1999**  
PRINCIPAL INVESTIGATOR: **ALVARO MORENO**  
AMOUNT: **5.750.000 pts**

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PROJECT TITLE: **EMSTES Research Project in Science Teaching**

FINANCING ENTITY: **BELGIAN MINISTRY OF EDUCATION**  
FROM: **1995** TO: **1996**  
PRINCIPAL INVESTIGATOR: **GÉRARD FOUREZ (FUNDP – Namur)**

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## PUBLICATIONS

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Indicate volume, first and last page (year) and Key.

Key: B= full book, BC.= book chapter, EC= entry/chapter of encyclopedia, A= article, ABS= abstract, R= review, E= editor.

(\*) Those publications in process and not yet published, just specify publication status. (\*\*) Optionally specify the most important aspects of each publication to assess quality (e.g. journal impact index, journal position on lists of the corresponding fields, cites received or other repercussion indicators)

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*AUTHORS (in order of authorship): Serrano-Luginbühl, S., Ruiz-Mirazo, K., Ostaszewski, R., Gallou, F. & Walde, P.*

*TITLE: Soft and dispersed interface-rich aqueous systems that promote and guide chemical reactions.*

*JOURNAL/BOOK TITLE: Nature Reviews Chemistry 2: 306-327.*

KEY: R

*DATE OF PUBLICATION (\*): 2018*

*REMARKABLE ASPECTS (\*\*):*

*ISSN: 2397-3358.*

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*AUTHORS (in order of authorship): Shirt-Ediss, B., Murillo-Sánchez, and Ruiz-Mirazo, K.*

*TITLE: Framing major prebiotic transitions as stages of protocell development: three challenges for origins-of-life research.*

*JOURNAL/BOOK TITLE: Beilstein Journal of Organic Chemistry 13: 1388-1395*

KEY: A

*DATE OF PUBLICATION (\*): 2017*

*REMARKABLE ASPECTS (\*\*):*

*ISSN: 1860-5397.*

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*AUTHORS (in order of authorship): Piedrafita, G., Monnard, P.-A., Mavelli, F. and Ruiz-Mirazo, K.*

*TITLE: Permeability-driven selection in a semi-empirical protocell model: the roots of prebiotic systems evolution.*

*JOURNAL/BOOK TITLE: Scientific Reports 7: 3141*

KEY: A

*DATE OF PUBLICATION (\*): 2017*

*REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **5,01**. First quartile (**Q1**)*

*ISSN: 2045-2322.*

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*AUTHORS (in order of authorship): Ruiz-Mirazo, K., Briones, C. and de la Escosura, A.*

*TITLE: Chemical roots of biological evolution: the origins of life as a process of development of autonomous functional systems.*

*JOURNAL/BOOK TITLE: Open Biology 7: 170050*

KEY: A

*DATE OF PUBLICATION (\*): 2017*

*REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **5,3**. First/second quartile (**Q1/Q2**)*

*ISSN: 2046-2441.*

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*AUTHORS (in order of authorship): Ruiz-Mirazo, K.*

*TITLE: Entre las moléculas y la vida: dos metáforas para indagar sobre la emergencia de la organización biológica. [From molecules to life: two metaphors to inquire about the emergence of biol. organization]*

JOURNAL/BOOK TITLE: In: *Nodos* . G. A Schwartz & V. E. Bermúdez (Eds.), Next Door Publishers (pp. 213-217).

KEY: BC

DATE OF PUBLICATION (\*): 2017

REMARKABLE ASPECTS (\*\*):

ISBN: 978-84-946669-7-1

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AUTHORS (in order of authorship): Acosta-Andrade, C., Artetxe, I., Lete, M.G., Monasterio, B.G., Ruiz-Mirazo, K., Goñi, F. M. and Sánchez-Jiménez, F.

TITLE: *Polyamine-RNA-membrane interactions: from the past to the future in biology.*

JOURNAL/BOOK TITLE: *Colloids and Surfaces B: Biointerfaces* 155: 173-181

KEY: A

DATE OF PUBLICATION (\*): 2017

REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **4,4**. First quartile (**Q1**)

ISSN: 0927-7765.

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AUTHORS (in order of authorship): Murillo-Sánchez, S., and Ruiz-Mirazo, K.

TITLE: *La biología sintética como desafío para comprender la autonomía de lo vivo.*

*[Synthetic biology as a challenge to understand biological autonomy]*

JOURNAL/BOOK TITLE: *Isegoría* 55: 545-568

KEY: A

DATE OF PUBLICATION (\*): 2016

REMARKABLE ASPECTS (\*\*):

ISSN: 1130-2087.

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AUTHORS (in order of authorship): Murillo-Sánchez, S., Beaufils, D., González-Mañas, J.M., Pascal, R. and Ruiz-Mirazo, K.

TITLE: *Fatty acids' double role in the prebiotic formation of a hydrophobic dipeptide.*

JOURNAL/BOOK TITLE: *Chemical Science* 7: 3406-3414

KEY: A

DATE OF PUBLICATION (\*): 2016

REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **9,2**. First quartile (**Q1**)

ISSN: 2041-6520.

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AUTHORS (in order of authorship): Bich, L., Mossio, M., Ruiz-Mirazo, K. and Moreno, A.

TITLE: *Biological regulation: controlling the system from within.*

JOURNAL/BOOK TITLE: *Biology & Philosophy* 31: 237-265

KEY: A

DATE OF PUBLICATION (\*): 2016 (available online in 2015 -- DOI: 10. 1007/s10539-015-9497-8)

REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **1,445**. First quartile (**Q1**)

ISSN: 0169-3867.

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AUTHORS (in order of authorship): Ibarguren, M., Bomans, P.H.H., Ruiz-Mirazo, K., Frederik, P.M., Alonso, A. and Goñi, F.M.

TITLE: *Thermally-induced aggregation and fusion of protein-free lipid vesicles.*

JOURNAL/BOOK TITLE: *Colloids and Surfaces B: Biointerfaces* 136: 545-552.

KEY: A

DATE OF PUBLICATION (\*): 2015

REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **4,4**. First quartile (**Q1**)

ISSN: 0927-7765.

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. and Moreno, A.  
TITLE: Reflexiones sobre el origen de la vida: algo más que un problema evolutivo.  
[Reflections on the origins of life: more than an evolutionary problem]

JOURNAL/BOOK TITLE: *Mètode* 87: 55-63

KEY: A

DATE OF PUBLICATION (\*): 2015 [2016 for the English version, in *Mètode Science Studies Journal*]  
MOST OUTSTANDING ASPECTS (\*\*):  
ISSN: 1133-3987.

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AUTHORS (in order of authorship): de la Escosura, A., Briones, C., and Ruiz-Mirazo, K.  
TITLE: The systems perspective at the crossroads between chemistry and biology.

JOURNAL/BOOK TITLE: *Journal of Theoretical Biology* 381: 11-22  
(DOI: 10.1016/j.jtbi.2015.04.036i)

KEY: A

DATE OF PUBLICATION (\*): 2015  
REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **2,394**.  
ISSN: 0022-5193.

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AUTHORS (in order of authorship): Shirt-Ediss, B., Solé, R.V., and Ruiz-Mirazo, K.  
TITLE: Emergent chemical behavior in variable-volume protocells.

JOURNAL/BOOK TITLE: *Life* 5(1): 181-211 (DOI: 10.3390/life5010181)

KEY: A

DATE OF PUBLICATION (\*): 2015  
REMARKABLE ASPECTS (\*\*):  
ISSN: 2075-1729.

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AUTHORS (in order of authorship): Balleza, D., García-Arribas, A., Sot, J., Ruiz-Mirazo, K. and Goñi, F.  
TITLE: Ether- versus ester-linked phospholipid bilayers containing either linear or branched apolar chains.

JOURNAL/BOOK TITLE: *Biophysical Journal* 107: 1364-1374.

KEY: A

DATE OF PUBLICATION (\*): 2014  
REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **4,137** First quartile (**Q1**)

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AUTHORS (in order of authorship): Shirt-Ediss, B., Ruiz-Mirazo, K., Mavelli, F. and Solé, R. V.  
TITLE: Modelling lipid competition dynamics in heterogeneous protocell populations.

JOURNAL/BOOK TITLE: *Scientific Reports* 4: 5675.

KEY: A

DATE OF PUBLICATION (\*): 2014 (DOI: 10.1038/srep05675)  
REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **5,078** First quartile (**Q1**)

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Briones, C. and de la Escosura, A.  
TITLE: Prebiotic 'Systems Chemistry': New Perspectives for the Origins of Life.

JOURNAL/BOOK TITLE: *Chemical Reviews* 114: 285-366.

KEY: R

DATE OF PUBLICATION (\*): 2014 -- Available online in 2013 (DOI: 10.1021/cr2004844)  
REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **42,054** First quartile (**Q1**)

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AUTHORS (in order of authorship): Arnellos, A., Moreno, A. and Ruiz-Mirazo, K.  
TITLE: Organizational requirements for multicellular autonomy: insights from a comparative case study.

JOURNAL/BOOK TITLE: *Biology and Philosophy* 29: 851-884.

KEY: A

DATE OF PUBLICATION (\*): 2014 -- Published online in June 2013: DOI 10.1007/s10539-013-9387-x  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **1,445** First quartile (**Q1**)

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AUTHORS (in order of authorship): Shirt-Ediss, B., Solé, R. and Ruiz-Mirazo, K.  
TITLE: Steady state analysis of a vesicle bioreactor with mechanosensitive channels.

JOURNAL/BOOK TITLE: In: ECAL 2013 Proceedings -- Advances in Artificial Life Liò, P., et al. (Eds.), MIT Press (pp. 1162-1169).  
KEY: BC

DATE OF PUBLICATION (\*): 2013  
REMARKABLE ASPECTS (\*\*): MIT Press  
ISBN: 9780262317092

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. and Moreno, A.  
TITLE: Synthetic Biology: challenging life in order to grasp, use or extend it.

JOURNAL/BOOK TITLE: Biological Theory 8: 376-382  
DATE OF PUBLICATION (\*): 2013  
MOST OUTSTANDING ASPECTS (\*\*): not indexed yet.  
KEY: A

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.  
TITLE: 'Self-organization'

JOURNAL/BOOK TITLE: In Dubitzky, W. et al (Eds.) "Encyclopedia of Systems Biology". Springer, Heidelberg (pp. 1915-1919).  
DATE OF PUBLICATION (\*): 2013  
REMARKABLE ASPECTS (\*\*): SPRINGER.  
ISBN: 978-1-4419-9862-0.  
KEY: EC

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.  
TITLE: Definir vida: un ejercicio constructivo. (Presentación del dossier 'Qué es la vida?')

JOURNAL/BOOK TITLE: Revista de la Sociedad Española de Bioquímica y Biología Molecular (SEBBM) Número 175, Marzo de 2013.  
KEY: A

DATE OF PUBLICATION (\*): 2013  
REMARKABLE ASPECTS (\*\*): Popularization article  
ISBN: 1696-473X.

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AUTHORS (in order of authorship): Mavelli, F. and Ruiz-Mirazo, K.  
TITLE: Theoretical conditions for the stationary reproduction of model protocells.

JOURNAL/BOOK TITLE: Integrative Biology 5: 324-341.  
DATE OF PUBLICATION (\*): 2013 (DOI: 10.1039/c2ib20222k)  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **4,509**  
KEY: A

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AUTHORS (in order of authorship): Piedrafita, G., Ruiz-Mirazo, K., Monnard, P.-A., Cornish-Bowden, A. & Montero, F.  
TITLE: Viability conditions for a compartmentalized proto-metabolic system: a semi-empirical approach.

JOURNAL/BOOK TITLE: PLoS ONE 7(6): e39480  
DATE OF PUBLICATION (\*): 2012 Available online (doi:10.1371/journal.pone.0039480)  
KEY: A

AUTHORS (in order of authorship): Ruiz-Mirazo, K. and Moreno, A.

TITLE: *Biología Sintética: enfrentándose a la vida para comprenderla, utilizarla o extenderla.*

JOURNAL/BOOK TITLE: *Pasajes* 38: 28-37.

KEY: A

DATE OF PUBLICATION (\*): 2012

REMARKABLE ASPECTS (\*\*): not indexed.

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AUTHORS (in order of authorship): Rendón, A., Valle, M., Montes, R., Goñi, F.M. and Ruiz-Mirazo, K.

TITLE: *Model systems of precursor cellular membranes: long chain alcohols stabilize spontaneously formed oleic acid vesicles.*

JOURNAL/BOOK TITLE: *Biophysical Journal* 102: 278-286.

KEY: A

DATE OF PUBLICATION (\*): 2012

MOST OUTSTANDING ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **4,137** First quartile (**Q1**)

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.

TITLE: *Autonomy in evolution: from minimal to complex life.*

JOURNAL/BOOK TITLE: *Synthese* 185 (1): 21-52

KEY: A

DATE OF PUBLICATION (\*): 2012 Available online (DOI 10.1007/s11229-011-9874-z)

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **0,782**

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AUTHORS (in order of authorship): Piedrafita, G., Mavelli, F., Morán, F. & Ruiz-Mirazo, K.

TITLE: *On the transition from prebiotic to proto-biological membranes: from 'self-assembly' to 'self-production'.*

JOURNAL/BOOK TITLE: In G. Kampis et al. (Eds): *ECAL 2009 Proceedings. Selected Papers -- Part I* Springer LNCS 5777 (Lecture Notes in Computer Science Series), pp. 256-264.

KEY: BC

DATE OF PUBLICATION (\*): 2011

REMARKABLE ASPECTS (\*\*): SPRINGER

ISBN: 978-3-642-21282-6

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AUTHORS (in order of authorship): Moreno, A., Ruiz-Mirazo, K. & Barandiaran, X.

TITLE: *The impact of the paradigm of complexity on the foundational frameworks of biology and cognitive science.*

JOURNAL/BOOK TITLE: In C. Hooker (ed): "Complex Systems." Vol X of the D. Gavia, P. Thagard & J. Woods (eds) *Handbook of Philosophy of Science*. Elsevier.

KEY: BC

DATE OF PUBLICATION (\*): 2011

REMARKABLE ASPECTS (\*\*): ELSEVIER -- [www.johnwoods.ca/HPS](http://www.johnwoods.ca/HPS)

ISBN: 978-0-444-52076-0

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.

TITLE: *New century biology could do with a universal definition of life.*

JOURNAL/BOOK TITLE: In G. Terzis & R. Arp (eds.): *Information and Living Systems: Essays in Philosophy of Biology*, MIT Press. (pp.: 3-23).

KEY: BC

DATE OF PUBLICATION (\*): 2011

REMARKABLE ASPECTS (\*\*): MIT Press

ISBN: 978-0-262-20174-2

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AUTHORS (in order of authorship): Moreno, A. & Ruiz-Mirazo, K.  
TITLE: The informational nature of biological causality.

JOURNAL/BOOK TITLE: In G. Terzis & R. Arp (eds.): *Information and Living Systems: Essays in Philosophy of Biology*, MIT Press. (pp.: 157-175). KEY: BC  
DATE OF PUBLICATION (\*): 2011  
REMARKABLE ASPECTS (\*\*): MIT Press  
ISBN: 978-0-262-20174-2

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. and Moreno, A.  
TITLE: 'Life'  
JOURNAL/BOOK TITLE: In Gargaud M. et al (Eds.) *"Encyclopedia of Astrobiology"*. Vol 2. Springer, Heidelberg. (pp. 919-921)

KEY: EC

DATE OF PUBLICATION (\*): 2011  
REMARKABLE ASPECTS (\*\*): SPRINGER.  
ISBN: 9783642112713 -- 3642112714

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.  
TITLE: 'Protocell'

JOURNAL/BOOK TITLE: In Gargaud M. et al (Eds.) *"Encyclopedia of Astrobiology"*. Vol 3. Springer, Heidelberg. (pp. 1353-1354)

KEY: EC

DATE OF PUBLICATION (\*): 2011  
REMARKABLE ASPECTS (\*\*): SPRINGER.  
ISBN: 9783642112713 -- 3642112714

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.; Piedrafito, G.; Ciriaco, F. & Mavelli, F.  
TITLE: Stochastic simulations of mixed-lipid compartments: from self-assembling vesicles to self-producing protocells.

JOURNAL/BOOK TITLE: In Arabnia H. R. (Ed.) *"Software Tools and Algorithms for Biological Systems"* (Book series: *Advances in Experimental Medicine & Biology*, AEMB). Ch. 70 Springer (pp. 689-696)  
KEY: BC

DATE OF PUBLICATION (\*): 2011.  
REMARKABLE ASPECTS (\*\*): SPRINGER  
ISBN: 978-1-4419-7045-9

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AUTHORS (in order of authorship): Luisi, P. L. & Ruiz-Mirazo K.  
TITLE: Open questions on the origins of life: Introduction to the special issue.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 40(4-5), 353-355 KEY: A  
DATE OF PUBLICATION (\*): 2010  
REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Ruiz-Mirazo K. & Luisi, P. L.  
TITLE: Open questions on the origins of life: Book of Abstracts.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 40(4-5). KEY: E  
DATE OF PUBLICATION (\*): 2010  
REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Piedrafita, G., Olasagasti, F., Ruiz-Mirazo, K., Peretó, J., Moreno, A., Montero, F. & Morán, F.

TITLE: Conceptual bases for the emergence of early protocells.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 40(4-5), 445-449. KEY: ABS

DATE OF PUBLICATION (\*): 2010

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Ruiz-Mirazo K.

TITLE: A systems view to define the boundaries of the problem of the origins of life.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 40(4-5), 495-496. KEY: ABS

DATE OF PUBLICATION (\*): 2010

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Saborido, C., Mossio, M. & Ruiz-Mirazo, K.

TITLE: *In search for conceptual bridges: A review of 'Functions in Biological and Artificial Worlds' (Edited by Ulrich Krohs and Peter Kroes).*

JOURNAL/BOOK TITLE: *Artificial Life* 16: 337-340.

KEY: R

DATE OF PUBLICATION (\*): Nov. 2010

REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **2,556** First quartile (**Q1**)

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AUTHORS (in order of authorship): Mavelli, F. & Ruiz-Mirazo, K.

TITLE: ENVIRONMENT: a computational platform to stochastically simulate reacting and self-reproducing lipid compartments

JOURNAL/BOOK TITLE: *Physical Biology* 7(3) 036002 doi: 10.1088/1478-3975/7/3/036002

KEY: A

DATE OF PUBLICATION (\*): 2010

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **3,480**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Peretó, J. & Moreno, A.

TITLE: Defining life or bringing biology to life.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 40: 203-213 KEY: A

DATE OF PUBLICATION (\*): 2010

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Shirt-Ediss, B., Mavelli, F. & Ruiz-Mirazo, K.

TITLE: *To Burst or Not To Burst: Osmotic Regulation in a Protocell Model Through Precursor Mechano-Sensitive Channels.*

JOURNAL/BOOK TITLE: In Fellermann et. al. (eds.) *Artificial Life XII: Proceedings of the Twelfth International Conf. on the Synthesis and Simulation of Living Systems*, pp.156-157. KEY: ABS

DATE OF PUBLICATION (\*): 2010

REMARKABLE ASPECTS (\*\*): MIT Press, Cambridge, MA

ISBN-10: 0-262-29075-8 --- ISBN-13: 978-0-262-29075-3

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AUTHORS (in order of authorship): Piedrafita, G., Shirt-Ediss, B., Mavelli, F., Monnard, P.-A. & Ruiz-Mirazo, K.

TITLE: *In vitro and in silico complementary studies on the physical properties of prebiotic compartments.*

JOURNAL/BOOK TITLE: In Fellermann et. al. (eds.) *Artificial Life XII: Proceedings of the Twelfth International Conf. on the Synthesis and Simulation of Living Systems*, p.162. KEY: ABS  
DATE OF PUBLICATION (\*): 2010  
REMARKABLE ASPECTS (\*\*): MIT Press, Cambridge, MA  
ISBN-10: 0-262-29075-8 --- ISBN-13: 978-0-262-29075-3

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AUTHORS (in order of authorship): Moreno, A. & Ruiz-Mirazo, K.  
TITLE: *The problem of the emergence of functional diversity in prebiotic evolution.*

JOURNAL/BOOK TITLE: *Biology and Philosophy* 24: 585-605. KEY: A  
DATE OF PUBLICATION (\*): 2009  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **1,445** First quartile (Q1)

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AUTHORS (in order of authorship): Etxeberria, A. & Ruiz-Mirazo, K.  
TITLE: *The challenging biology of transients.*

JOURNAL/BOOK TITLE: *EMBO Reports* 10, S33-S36. KEY: A  
DATE OF PUBLICATION (\*): 2009  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **7,519** First quartile (Q1)

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.  
TITLE: *Un nuovo inizio.*

JOURNAL/BOOK TITLE: *Sapere* (Ottobre 2009): anno 75 (5): 28-33.  
<http://www.galileonet.it/sapere/editoriale/32/riconquistare-la-scuola> KEY: A  
DATE OF PUBLICATION (\*): 2009  
REMARKABLE ASPECTS (\*\*): *Italian Journal for Popularization of Science*

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AUTHORS (in order of authorship): Ruiz-Mirazo K., Lerario, M. & Mavelli, F.  
TITLE: *Prebiotically plausible functional compartments: a simulation model to study lipid-peptide protocell dynamics.*

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 39: 326-327, (Abstract Proceedings of ISSOL'08). KEY: ABS  
DATE OF PUBLICATION (\*): 2009  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Barandiaran, X. & Ruiz-Mirazo, K.  
TITLE: *Modelling autonomy: simulating the essence of life and cognition. (Editorial Introduction to the Special Issue).*

JOURNAL/BOOK TITLE: *BioSystems* 91(2): 295-304. KEY: A  
DATE OF PUBLICATION (\*): 2008  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **1,653**

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AUTHORS (in order of authorship): Barandiaran, X. & Ruiz-Mirazo, K.  
TITLE: *Modelling autonomy.*

JOURNAL/BOOK TITLE: *BioSystems* 91(2) KEY: E  
DATE OF PUBLICATION (\*): 2008  
REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **1,653**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Mavelli, F.

TITLE: On the way towards 'basic autonomous agents': stochastic simulations of minimal lipid-peptide cells.

JOURNAL/BOOK TITLE: BioSystems 91(2): 374-387.

KEY: A

DATE OF PUBLICATION (\*): 2008

REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **1,653**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Umerez, J. & Moreno, A.

TITLE: Enabling conditions for 'open-ended evolution'.

JOURNAL/BOOK TITLE: Biology and Philosophy 23(1): 67-85.

KEY: A

DATE OF PUBLICATION (\*): 2008

REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **1,445** First quartile (**Q1**)

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AUTHORS (in order of authorship): Mavelli, F., Lerario, M. & Ruiz-Mirazo, K.

TITLE: 'ENVIRONMENT': A Stochastic Simulation Platform to Study Protocell Dynamics.

JOURNAL/BOOK TITLE: In H. R. Arabnia et al. (Eds.): Proceedings BIOCOMP 2008 (International Conference on Bioinformatics & Computational Biology) CSREA Press, pp. 934-941.

KEY: BC

DATE OF PUBLICATION (\*): 2008

REMARKABLE ASPECTS (\*\*):

ISBN:1-60132-053-1

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Umerez, J. & Moreno, A.

TITLE: Organizational requirements for open-ended evolution.

JOURNAL/BOOK TITLE: In S. Bullock, J. Noble, R. A. Watson, and M. A. Bedau (Eds.): Proceedings of Alife XI, Winchester, UK, MIT Press, Cambridge, MA (p. 58)

KEY: ABS

DATE OF PUBLICATION (\*): 2008

REMARKABLE ASPECTS (\*\*):

ISBN 978-0-262-75017-2

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AUTHORS (in order of authorship): Mavelli, F. & Ruiz-Mirazo, K.

TITLE: Stochastic simulations of minimal self-(re-)producing cellular systems.

JOURNAL/BOOK TITLE: Phil Trans Royal Soc London B 362 (1486): 1789-1802.

KEY: A

DATE OF PUBLICATION (\*): 2007

REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **6,584** First quartile (**Q1**)

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Mavelli, F.

TITLE: Simulation model for functionalized vesicles: lipid-peptide integration in minimal protocells.

JOURNAL/BOOK TITLE: In Almeida e Costa et al. (eds): Advances in Artificial Life (Proceedings of ECAL 2007), pp. 32-41. Springer, Berlin.

KEY: BC

DATE OF PUBLICATION (\*): 2007

REMARKABLE ASPECTS (\*\*): SPRINGER -- ISBN 978-3-540-74912-7

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AUTHORS (in order of authorship): Mavelli, F. & Ruiz-Mirazo, K.

TITLE: Stochastic simulation of fatty-acid protocell models.

JOURNAL/BOOK TITLE: In Sergey M. Bezukrov (eds.): *Noise and Fluctuations in Biological, Biophysical, and Biomedical Systems*. (SPIE Proceedings vol. 6602, pp. 1B1-1B10).. ISBN:9780819467393. Bellingham, Washington. KEY: BC  
DATE OF PUBLICATION (\*):2007  
REMARKABLE ASPECTS (\*\*):

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Mavelli, F.  
TITLE: *Modelling minimal lipid-peptide cells*.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 37: 433–437. KEY: ABS  
DATE OF PUBLICATION (\*): 2007  
REMARKABLE ASPECTS (\*\*):ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Mavelli, F. & Ruiz-Mirazo, K.  
TITLE: *Bridging the gap between in silico and in vitro approaches to minimal cells*.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 37: 455–458. KEY: ABS  
DATE OF PUBLICATION (\*): 2007  
REMARKABLE ASPECTS (\*\*):ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.  
TITLE: *On the origins of information and its relevance for biological complexity*.

JOURNAL/BOOK TITLE: *Biological Theory* 1(3): 227-229. KEY: A  
DATE OF PUBLICATION (\*): 2006  
REMARKABLE ASPECTS (\*\*): not indexed yet

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Stano, P. & Luisi, P.L.  
TITLE: *Lysozyme effect on oleic acid/oleate vesicles*.

JOURNAL/BOOK TITLE: *Journal of Liposome Research* 16:143–154. KEY: A  
DATE OF PUBLICATION (\*): 2006  
REMARKABLE ASPECTS (\*\*):ISI WoK – JCR 5yearIF: **1,944**

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AUTHORS (in order of authorship): Moreno, A. & Ruiz-Mirazo, K.  
TITLE: *The long-term maintenance and open-ended growth of complexity in nature: information as a decoupling mechanism in the origins of life*.

JOURNAL/BOOK TITLE: In: Capra F, Sotolongo P, Juarrero A. & van Uden J. (Eds): *Rethinking Complexity* ISCE Publisher. (pp. 55-72). KEY: BC  
DATE OF PUBLICATION (\*): 2006  
REMARKABLE ASPECTS (\*\*): ISBN: 0-9766814-6-3

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Mavelli, F.  
TITLE: *Stochastic Simulations of proto-cellular self-assembling systems*.

JOURNAL/BOOK TITLE: In: *Science and Supercomputing in Europe: Report 2006* (Bologna-Cineca), pp.170-179. ISBN: 978-88-86037-19-8. KEY: BC

DATE OF PUBLICATION (\*):2006  
REMARKABLE ASPECTS (\*\*):

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.  
TITLE: ¿Puede la vida ser definida? (Can life be defined?)

JOURNAL/BOOK TITLE: In: Martínez Manrique, F. & Paris-Viñé, L. M. (eds) *Actas del V Congreso de la Sociedad de Lógica, Metodología y Filosofía de la Ciencia en España*. Sider, SC (Granada) pp. 311-313.  
KEY: BC

DATE OF PUBLICATION (\*): 2006

REMARKABLE ASPECTS (\*\*): ISBN-13: 978-84-9349419-3

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.

TITLE: Working towards the 'minimal cell': a bottom-up proposal.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 36, pp. 216-218. KEY: ABS

DATE OF PUBLICATION (\*): 2005

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.

TITLE: Basic autonomy as a fundamental step in the synthesis of life.

JOURNAL/BOOK TITLE: *Artificial Life*, 10(3): 235-259.

KEY: A

DATE OF PUBLICATION (\*): 2004

REMARKABLE ASPECTS (\*\*): ISI WoK -- JCR 5yearIF: **2,556** First quartile (Q1)

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Peretó, J. & Moreno, A.

TITLE: A universal definition of life: autonomy and open-ended evolution.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere* 34: 323-346. KEY: A

DATE OF PUBLICATION (\*): 2004

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**\*\*\* **This article was selected for the compilation book: *The Nature of Life*, M. Bedau & C. Cleland (eds.), Cambridge University Press, 2010.**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Peretó J. & Moreno, A.

TITLE: Proposal for a universal definition of life.

JOURNAL/BOOK TITLE: *Origins of Life and Evolution of the Biosphere (Abstracts of ISSOL'02)* 33 (3), pp. 282-283.

KEY: ABS

DATE OF PUBLICATION (\*): 2003

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **2,028**

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.

TITLE: Biziaren sorrera berriro sortzen? (Title translation, from Basque: Re-originating the origins of life?)

JOURNAL/BOOK TITLE: *Elhuyar*, 191, pp. 22-25.

KEY: A

DATE OF PUBLICATION (\*): 2003

REMARKABLE ASPECTS (\*\*): *Basque Journal for Popularization of Science*

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AUTHORS (in order of authorship): Moreno, A. & Ruiz-Mirazo, K.

TITLE: Key issues regarding the origin, nature and evolution of complexity in nature: information as a central concept to understand biological organization.

JOURNAL/BOOK TITLE: *Emergence* 4.1/4.2: 63-76.

KEY: A

DATE OF PUBLICATION (\*): 2002

AUTHORS (in order of authorship): Ruiz-Mirazo, K.

TITLE: *Condiciones físicas para la aparición de sistemas autónomos con capacidades evolutivas abiertas. (Physical conditions for the appearance of autonomous systems with open-ended evolutionary capacities).*

JOURNAL/BOOK TITLE: *Tesis Doctoral. Universidad del País Vasco UPV-EHU.*

KEY: Ph.D

DATE OF PUBLICATION (\*): 2001

REMARKABLE ASPECTS (\*\*): *PhD Dissertation*

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AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.

TITLE: *Searching for the roots of autonomy: the natural and artificial paradigms revisited.*

JOURNAL/BOOK TITLE: *CC-AI (Communication and Cognition – Artificial Intelligence) 17 (3-4): 209-228.*

KEY: A

DATE OF PUBLICATION (\*): 2000

REMARKABLE ASPECTS (\*\*): not indexed

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Etxeberria, A., Moreno, A. & Ibáñez, J.

TITLE: *Organisms and their place in biology.*

JOURNAL/BOOK TITLE: *Theory in Biosciences, 119: 43-67.*

KEY: A

DATE OF PUBLICATION (\*): 2000

REMARKABLE ASPECTS (\*\*): *ISI WoK – JCR 5yearIF: 1,481*

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AUTHORS (in order of authorship): Ruiz-Mirazo, K.

TITLE: *Raíces del concepto de autonomía en biología: una crítica al concepto de autopoiesis. (Conceptual roots of autonomy in biology: a criticism on the concept of autopoiesis)*

JOURNAL/BOOK TITLE: *In Mary Sol de Mora, et al. (eds.), Actas del III Congreso de la Sociedad de Lógica, Metodología y Filosofía de la Ciencia en España, Publicaciones del Departamento de Filosofía de la UPV-EHU, San Sebastián – Donostia, pp. 609-617.*

KEY: BC

DATE OF PUBLICATION (\*): 2000

REMARKABLE ASPECTS (\*\*):

ISBN:84-600-9579-7

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AUTHORS (in order of authorship): Moreno, A. & Ruiz-Mirazo, K.

TITLE: *Metabolism and the problem of its universalization.*

JOURNAL/BOOK TITLE: *BioSystems 49 (1): 45-61.*

KEY: A

DATE OF PUBLICATION (\*): 1999

REMARKABLE ASPECTS (\*\*): *ISI WoK – JCR 5yearIF: 1,653*

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AUTHORS (in order of authorship): Ruiz-Mirazo, K., Moreno, A., Morán, F., Peretó, J. & Merelo, J.J.

TITLE: *Designing a simulation model of a self-maintaining cellular system.*

JOURNAL/BOOK TITLE: *In: Floreano, D., Nicoud, J-D Nicoud & Mondada, F. (eds.), Advances in Artificial Life, Proceedings of the 5th European Conference ECAL '99, Berlin, Springer-Verlag, pp. 379-389.*

KEY: BC

DATE OF PUBLICATION (\*): 1999

REMARKABLE ASPECTS (\*\*):

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*AUTHORS (in order of authorship): Ruiz-Mirazo, K. & Moreno, A.*

*TITLE: Autonomy and emergence: how systems become agents through the generation of functional constraints.*

*JOURNAL/BOOK TITLE: Acta Polytechnica Scandinavica Ma91: 273-282.*

*KEY: A*

*DATE OF PUBLICATION (\*): 1998*

*REMARKABLE ASPECTS (\*\*): not indexed*

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*AUTHORS (in order of authorship): Ruiz-Mirazo, K., Moreno, A. & Morán, F.*

*TITLE: Merging the energetic and the relational-constructive logic of life.*

*JOURNAL/BOOK TITLE: In: Adami, C., Belew, R., Kitano, H. & Taylor, C. (eds.), Proceedings of The Sixth International Conference on Artificial Life (ALIFE VI), Cambridge, MA: MIT Bradford Books, pp. 448-451.*

*KEY: BC*

*DATE OF PUBLICATION (\*): 1998*

*REMARKABLE ASPECTS (\*\*): MIT PRESS -- ISBN:0-262-51099-5*

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*AUTHORS (in order of authorship): Ruiz-Mirazo, K.*

*TITLE: World-views while introducing quantum mechanics.*

*JOURNAL/BOOK TITLE: UPV/EHU and Notre Dame de la Paix (Namur – Belgium) Publication Services*

*KEY: MsD*

*DATE OF PUBLICATION (\*): 1995*

*REMARKABLE ASPECTS (\*\*): Masters Dissertation*

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## MOST OUTSTANDING PUBLICATIONS

(Select five or six publications that you consider to be the most outstanding ones. Include for each of them a brief summary with its most notable objectives and results)

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AUTHORS (in order of authorship): **Piedrafita, G., Monnard, P.-A., Mavelli, F. & Ruiz-Mirazo, K.**

TITLE: *Permeability-driven selection in a semi-empirical protocell model: the roots of prebiotic systems evolution.*

JOURNAL/BOOK TITLE: **Scientific Reports 7: 3141**

KEY: **A**

DATE OF PUBLICATION (\*): **2017**

REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **5,01**. First quartile (**Q1**)

NUMBER OF CITATIONS: from ISI WoK: **2** (4 in Google Scholar)

ISSN: 2045-2322.

SUMMARY (max. 150 words): *This article is one of the best and most recent representatives of our line of work in protocell modelling, combining both theoretical and experimental methodologies (in vitro – in silico), with high standards in the quality of our research outcomes and the type of journal where those results are eventually published.*

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AUTHORS (in order of authorship): **Murillo-Sánchez, S., Beaufils, D., González-Mañas, J.M., Pascal, R. and Ruiz-Mirazo, K.**

TITLE: *Fatty acids' double role in the prebiotic formation of a hydrophobic dipeptide.*

JOURNAL/BOOK TITLE: **Chemical Science 7: 3406-3414**

KEY: **A**

DATE OF PUBLICATION (\*): **2016**

REMARKABLE ASPECTS (\*\*): JCR 5yearIF: **9,2**. First quartile (**Q1**)

NUMBER OF CITATIONS: from ISI WoK: **17** (19 in Google Scholar)

**14** in Google Scholar

ISSN: 2041-6520.

SUMMARY (max. 150 words): *This is the best experimental article I have published to date, demonstrating the relevance that fatty acid vesicles could have, in prebiotic conditions, to enhance chemical reactions that would be happening in their close environment.*

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AUTHORS (in order of authorship): **Ruiz-Mirazo, K., Briones, C. and de la Escosura, A.**

TITLE: **Prebiotic 'Systems Chemistry': New Perspectives for the Origins of Life.**

JOURNAL/BOOK TITLE: **Chemical Reviews 114: 285-366.**

KEY: **R**

DATE OF PUBLICATION (\*): **2014**

REMARKABLE ASPECTS (\*\*): ISI WoK – JCR 5yearIF: **42,054** First quartile (**Q1**)

NUMBER OF CITATIONS from ISI WoK: **240** (322 in Google Scholar)

ISSN: 2041-6520.

SUMMARY (max. 150 words): *This review article has become a key reference, worldwide, in the emergent field of research on 'systems chemistry', as the new and best platform to approach the problem of origins of life. It is a perfect example of how ideas discussed and developed in the domain of philosophy of biology or theoretical biology can be transferred to the scientific arena, leading to a shift of focus in concrete research practices.*

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AUTHORS (in order of authorship): **Ruiz-Mirazo, K., Umerez, J. & Moreno, A.**

TITLE: *Enabling conditions for 'open-ended evolution'.*

JOURNAL/BOOK TITLE: **Biology and Philosophy 23(1): 67-85.**

KEY: **A**

DATE OF PUBLICATION: **2008**

REMARKABLE ASPECTS: **ISI WoK – JCR 5yearIF: 1,445 First quartile (Q1)**

NUMBER OF CITATIONS from ISI WoK : **29** (55 in Google Scholar)

SUMMARY (max. 150 words): *In this article we give our most detailed and elaborate account of the idea of 'open-ended evolution', also acknowledging and criticizing previous views, and we investigate under which general material and organizational conditions could it be implemented in its minimal sense. Further work on these lines, including a stronger formalization effort of the concept, are under way.*

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AUTHORS (in order of authorship): **Ruiz-Mirazo, K. & Moreno, A.**

TITLE: *Basic autonomy as a fundamental step in the synthesis of life.*

JOURNAL/BOOK TITLE: **Artificial Life, 10(3): 235-259.**

KEY: **A**

DATE OF PUBLICATION (\*): **2004**

REMARKABLE ASPECTS (\*\*): **ISI WoK – JCR 5yearIF: 2,556 First quartile (Q1)**

NUMBER OF CITATIONS from ISI WoK: **89** (241 in Google Scholar)

SUMMARY (max. 150 words): *The concept of 'basic autonomy' is here presented and supported as one of the main constructs necessary to understand the transition between complex self-organizing processes (in physics and chemistry) and proper biological systems. Later work (from us or from other members of our research group) clearly builds upon this.*

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AUTHORS (in order of authorship): **Ruiz-Mirazo, K., Peretó, J. & Moreno, A.**

TITLE: *A universal definition of life: autonomy and open-ended evolution.*

JOURNAL/BOOK TITLE: **Origins of Life and Evolution of the Biosphere 34: 323-346.**

KEY: **A**

DATE OF PUBLICATION (\*): **2004**

REMARKABLE ASPECTS (\*\*): **ISI WoK – JCR 5yearIF: 2,028**

NUMBER OF CITATIONS from ISI WoK: **114** (307 in Google Scholar)

ADDITIONAL NOTE: **This article was selected for the anthology or compilation book:**

***The Nature of Life*, M. Bedau & C. Cleland (eds.), Cambridge University Press, 2010.**

SUMMARY (max. 150 words): *Focused on the problem of defining life (and its tight connection with the problem of origins), this is the best summary of most of my PhD work. Our more recent articles on the subject (like the ones we just published –or are publishing– in 2010) consist in developments of what we proposed here.*

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**PARTICIPATION IN RESEARCH CONTRACTS OF SPECIAL RELEVANCE WITH COMPANIES  
AND/OR PRIVATE OR PUBLIC FUNDING BODIES**

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*CONTRACT TITLE:*

*FINANCIAL ENTITIES:*

*LENGHT FROM:*

*TO:*

*PRINCIPAL INVESTIGATOR:*

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## TECHNOLOGY TRANSFERENCE ACTIVITIES

Specify activity performed, time dedication and participation mode, territorial scope, validity and budget; and any other relevant contribution regarding: Results of technology transference activities, introduction of product improvements on the market or processes in progress. Participation in generation of spin-off companies based on technological innovations, development of competences / technological skills; start-up of new techniques or procedures, large installation or complex equipment maintenance, execution of technological services: homologation, calibration, analysis or others.

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## PATENTS AND UTILITY MODELS

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*INVENTORS (in order of authorship):*

*TITLE:*

*APPLICATION FORM No:*

*PRIORITY COUNTRY:*

*PRIORITY DATE:*

*HOLDER ENTITY:*

*OTHER COUNTRIES WHICH THE PATENT HAS BEEN EXTENDED TO:*

*COMPANIES THAT ARE LICENSING IT:*

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## STAYS IN INTERNATIONALLY RECOGNIZED CENTRES

KEY: D=Ph.D student, P=postdoctoral. G= guest, S=staff, O=others (specify)

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CENTRE: **FLAD (COMPUTATIONAL BIOLOGY) – INSTITUTO GULBENKIAN DE CIENCIA**  
PLACE: **OEIRAS (LISBOA)** COUNTRY: **PORTUGAL** YEAR: **2011** LENGHT: **11 WEEKS**  
TOPIC: **SYSTEMS BIOLOGY AND SYSTEMS CHEMISTRY – ELABORATION OF ESSAY AND COLLABORATION WITH LUIS ROCHA** KEY: **G**

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CENTRE: **DEPARTMENT OF CHEMISTRY – UNIVERSITY OF BARI**  
PLACE: **BARI** COUNTRY: **ITALY** YEAR: **2005** LENGHT: **2 MONTHS**  
TOPIC: **DEVELOPMENT OF A STOCHASTIC SIMULATION MODEL FOR MINIMAL CELLULAR SYSTEMS (COLLABORATION WITH FABIO MAVELLI – HPC EUROPA PROGRAM)** KEY: **P**

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CENTRE: **DEPARTMENT OF BIOLOGY – UNIVERSITY ROMA TRE**  
PLACE: **ROME** COUNTRY: **ITALY** YEAR: **2004-2005** LENGHT: **14 MONTHS**  
TOPIC: **THEORETICAL AND EXPERIMENTAL RESEARCH ON MINIMAL CELLULAR SYSTEM (COLLABORATION WITH PROF. LUISI AND HIS GROUP)** KEY: **P**

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CENTRE: **INSTITUTE FOR POLYMERS – ETH-ZURICH**  
PLACE: **ZURICH** COUNTRY: **SWITZERLAND** YEAR: **2003** LENGHT: **7 MONTHS**  
TOPIC: **THEORETICAL AND EXPERIMENTAL RESEARCH ON MINIMAL CELLULAR SYSTEM (COLLABORATION WITH PROF. P. L. LUISI AND HIS GROUP)** KEY: **P**

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CENTRE: **CENTRE FOR ASTROBIOLOGY (CAB) -- CSIC/INTA**  
PLACE: **MADRID** COUNTRY: **SPAIN** YEAR: **2002** LENGHT: **6 MONTHS**  
TOPIC: **RESEARCH ON ASTROBIOLOGY AND ITS LINK WITH THE PROBLEM OF THE DEFINITION AND ORIGINS OF LIFE. (ADDITIONALLY: DEVELOPMENT OF POPULARIZATION MATERIALS.)** KEY: **P**

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CENTRE: **DEPARTMENT OF PHILOSOPHY – UNIVERSITY OF NEWCASTLE (AUSTRALIA)**  
PLACE: **NEWCASTLE** COUNTRY: **AUSTRALIA** YEAR: **1999** LENGHT: **2 MONTHS**  
TOPIC: **PHILOSOPHICAL INVESTIGATIONS ON COMPLEXITY AND DYNAMICS SYSTEMS (COLLABORATION WITH PROF. C.A. HOOKER AND HIS RESEARCH GROUP)** KEY: **D**

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CENTRE: **SANTA FE INSTITUTE (COMPLEX SYSTEMS)**  
PLACE: **SANTA FE** COUNTRY: **USA** YEAR: **1998** LENGHT: **1 MONTH**  
TOPIC: **SUMMER SCHOOL ON COMPLEX SYSTEMS** KEY: **D**

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CENTRE: **D. SCIENCES, PHILOSOPHIES AND SOCIETIES (FACULTÉ DE SCIENCES – FUNDP)**  
PLACE: **NAMUR** COUNTRY: **BELGIUM** YEAR: **1995** LENGHT: **7 MONTHS**  
TOPIC: **EUROPEAN MASTERS ON ‘SOCIETY, SCIENCE AND TECHNOLOGY’;**  
SPECIALIZATION: **SCIENCE TEACHING** KEY: **O (ERASMUS POST-GRAD. STUDENT)**

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## CONTRIBUTIONS TO CONFERENCES

KEY: P=Poster; OC = Oral Communication (20-30 min.); L=Lecture (45-60min.); IL=Invited Lecture (travel expenses covered by the organization); O=others (specify)

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AUTHORS (main presenter): B. Shirt-Ediss, A. Moreno & K. Ruiz-Mirazo

TITLE: The construction of biological 'inter-identity' as the outcome of a complex process of prebiotic evolutionary development.

TYPE OF PRESENTATION: **OC**

CONFERENCE: IX SLMFCE Meeting – IX Congreso de la Sociedad Española de Lógica, Metodología y Filosofía de la Ciencia.

PUBLICATION: Yes (forthcoming)

MEETING PLACE: UNED, Madrid, España.

DATES: 13-16 Nov., 2018

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: The teleological debate at the interface between chemistry and biology.

TYPE OF PRESENTATION: **OC**

CONFERENCE: ISHPPSB 2017 – Meeting of the International Society for History, Philosophy and Social Studies of Biology.

PUBLICATION: No

MEETING PLACE: Sao Paulo, Brazil.

DATES: 16-21 July, 2017

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AUTHORS (main presenter): G. Piedrafita, P.-A. Monnard, F. Mavelli & K. Ruiz-Mirazo

TITLE: Permeability-driven selection in a semi-empirical protocell model: the roots of prebiotic 'systems' evolution.

TYPE OF PRESENTATION: **P (award – 'poster prize')**

CONFERENCE: ORIGINS 2017 (Conference of the Intl. Society for Studies on the Origins of Life)

PUBLICATION: Yes

MEETING PLACE: San Diego, USA.

DATES: 16-21 July, 2017

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Permeability-driven selection in a semi-empirical protocell model: the roots of prebiotic systems evolution.

TYPE OF PRESENTATION: **IL**

CONFERENCE: SysChem2017 (CM 1304 COST Action Meeting)

PUBLICATION: Yes

MEETING PLACE: Sopron, Hungary.

DATES: 11-15 September, 2017

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Major transitions in prebiotic evolution: protocell systems in vitro and in silico.

TYPE OF PRESENTATION: **IL**

CONFERENCE: WIVACE 2015 – Meeting of the Italian Society for Artificial Life.

PUBLICATION: No

MEETING PLACE: Bari, Italy.  
DATES: 23-24 September, 2015

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AUTHORS (main presenter): K. Ruiz-Mirazo  
TITLE: Protocell autonomy: constructing boundaries to organize basic biological processes and interactions.  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: ISHPPSB 2015 – Meeting of the International Society for History, Philosophy and Social Studies of Biology.  
PUBLICATION: No

MEETING PLACE: Montreal, Canada.  
DATES: 5-10 July, 2015

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AUTHORS (main presenter): B. Shirt-Ediss, R. Solé & K. Ruiz-Mirazo  
TITLE: A new view of protocell metabolism.  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: ECAL 2015 -- 13th European Conference on Artificial Life.  
PUBLICATION: No

MEETING PLACE: York, UK.  
DATES: 20-24 July., 2015

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AUTHORS (main presenter): K. Ruiz-Mirazo  
TITLE: Open questions and challenges in current research on the origins of life.  
TYPE OF PRESENTATION: **IL**  
CONFERENCE: Rencontres de la Société Française d'Exobiologie (3eme Colloque National).  
PUBLICATION: No

MEETING PLACE: La Baule, France.  
DATES: 6-9 Oct., 2014

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AUTHORS (main presenter): S.Murillo Sánchez, D. Beaufils, R. Pascal & K. Ruiz-Mirazo  
TITLE: Vers une integration systémique des chimies des peptides et des agrégats de lipides.  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: Rencontres de la Société Française d'Exobiologie (3eme Colloque National).  
PUBLICATION: No

MEETING PLACE: La Baule, France.  
DATES: 6-9 Oct., 2014

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AUTHORS (main presenter): K. Ruiz-Mirazo, C. Briones & A. de la Escosura  
TITLE: Opening the scope of origins of life research: the challenge of 'prebiotic systems chemistry'.  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: ORIGINS 2014 (International Conference of ISSOL and BioAstronomy)  
PUBLICATION: No

MEETING PLACE: Nara, Japan  
DATES: 6-11 July. 2014

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AUTHORS (main presenter): K. Ruiz-Mirazo, F. Mavelli, B. Shirt-Ediss & R. Solé  
TITLE: Theoretical modeling of protocell competition, growth and reproduction dynamics.  
TYPE OF PRESENTATION: **OC**

CONFERENCE: ORIGINS 2014 (*International Conference of ISSOL and BioAstronomy*)  
PUBLICATION: No

MEETING PLACE: Nara, Japan  
DATES: 6-11 July. 2014

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AUTHORS (*main presenter*): B. Shirt-Ediss, R. Solé & K. Ruiz-Mirazo  
TITLE: *Steady state analysis of a vesicle bioreactor with mechanosensitive channels.*  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: ECAL 2013 (12th European Conference on Artificial Life)  
PUBLICATION: Yes (*article as book chapter*)

MEETING PLACE: Taormina, Italy  
DATES: 2-6 Sept. 2013

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AUTHORS (*main presenter*): S. Murillo Sánchez & K. Ruiz-Mirazo  
TITLE: *On the origins of autonomy: protocells as the first forms of functional integration.*  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: ISHPPSB 2013 (Meeting of the International Society for History, Philosophy and Social Studies of Biology)  
PUBLICATION: No

MEETING PLACE: Montpellier, France  
DATES: 7-12 July 2013

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AUTHORS (*main presenter*): S. Murillo Sánchez & K. Ruiz-Mirazo  
TITLE: *On the origin of self-constructing functional protocells: the lipid-peptide model.*  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: I Congreso de la AIFIBI (Asociación Ibero-Americana de Filosofía de la Biología)  
PUBLICATION: No

MEETING PLACE: Valencia, Spain  
DATES: 28-30 Nov. 2012

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AUTHORS (*main presenter*): A. Arnellos, K. Ruiz-Mirazo & A. Moreno  
TITLE: *Autonomy as a property that defines individual organisms among multi-cellular communities*  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: I Congreso de la AIFIBI (Asociación Ibero-Americana de Filosofía de la Biología)  
PUBLICATION: No

MEETING PLACE: Valencia, Spain  
DATES: 28-30 Nov. 2012

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AUTHORS (*main presenter*): K. Ruiz-Mirazo, FM Goñi, J. Sot, A. Rendón, D. Balleza  
TITLE: *Self-assembly, stability and permeability of precursor cellular membranes.*  
TYPE OF PRESENTATION: **OC**  
CONFERENCE: ICPOC'21 (21<sup>st</sup> International Conference on Physical Organic Chemistry)  
PUBLICATION: No

MEETING PLACE: Durham, UK.  
DATES: 9-13 Sept. 2012

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AUTHORS (*main presenter*): K. Ruiz-Mirazo

*TITLE: protocell autonomy: linking processes through self-made boundaries.*

*TYPE OF PRESENTATION: IL*

*CONFERENCE: Conference on Bioscience and Society*

*PUBLICATION: No*

*MEETING PLACE: Ljubljana, Slovenia.*

*DATES: 6-7 Oct. 2011*

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*AUTHORS (main presenter): B. Shirt-Ediss, R. Solé, F. Mavelli & K. Ruiz-Mirazo*

*TITLE: On the chemical relevance of compartment 'self-production'*

*TYPE OF PRESENTATION: OC*

*CONFERENCE: ECAL 2011 Conference -- Workshop on Artificial Autonomy*

*PUBLICATION: No*

*MEETING PLACE: Paris, France*

*DATES: 8-12 August 2011*

---

*AUTHORS (main presenter): F. Mavelli & K. Ruiz-Mirazo*

*TITLE: Stationary reproduction in model protocells*

*TYPE OF PRESENTATION: P*

*CONFERENCE: Origins 2011 -- International Conference of ISSOL and BioAstronomy*

*PUBLICATION: No*

*MEETING PLACE: Montpellier, France*

*DATES: 3-8 July 2011*

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*AUTHORS (main presenter): D. Balleza, J. Sot, K. Ruiz-Mirazo & FM Goñi*

*TITLE: An experimental study on the 'lipid divide': phase behaviour of mixtures of n-acyl and polyprenyl lipids.*

*TYPE OF PRESENTATION: P*

*CONFERENCE: Origins 2011 -- International Conference of ISSOL and BioAstronomy*

*PUBLICATION: No*

*MEETING PLACE: Montpellier, France*

*DATES: 3-8 July 2011*

---

*AUTHORS (main presenter): A. de la Escosura, C. Briones & K. Ruiz-Mirazo*

*TITLE: A 'systems chemistry' perspective on the origins of life.*

*TYPE OF PRESENTATION: P*

*CONFERENCE: Origins 2011 -- International Conference of ISSOL and BioAstronomy*

*PUBLICATION: No*

*MEETING PLACE: Montpellier, France*

*DATES: 3-8 July 2011*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo & F. Mavelli*

*TITLE: Stationary self-reproduction and osmotic regulation in model proto-cells: an extended stochastic kinetics approach*

*TYPE OF PRESENTATION: P*

*CONFERENCE: 11th International Conference on Systems Biology (ICSB 2010)*

*PUBLICATION: Yes (Abstract)*

*MEETING PLACE: EICC, Edinburgh, UK.*

DATES: 10-16 Oct. 2010

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AUTHORS (main presenter): Ben Shirt-Ediss, F. Mavelli & K. Ruiz-Mirazo

TITLE: To Burst or Not To Burst: Osmotic Regulation in a Protocell Model Through Precursor Mechano-Sensitive Channels

TYPE OF PRESENTATION: **OC**

CONFERENCE: ALife XII

PUBLICATION: Yes (Abstract)

MEETING PLACE: Southern Denmark University, Odense, Denmark.

DATES: 19-23 August 2010

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AUTHORS (main presenter): G. Piedrafita, Ben Shirt-Ediss, F. Mavelli & K. Ruiz-Mirazo

TITLE: 'In vitro' and 'in silico' complementary studies on the physical properties of prebiotic compartments.

TYPE OF PRESENTATION: **P**

CONFERENCE: ALife XII

PUBLICATION: Yes (Abstract)

MEETING PLACE: Southern Denmark University, Odense, Denmark.

DATES: 19-23 August 2010

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AUTHORS (main presenter): K. Ruiz-Mirazo, G. Piedrafita, F. Ciriaco & F. Mavelli

TITLE: Stochastic simulations of mixed-lipid compartments: from self-assembling vesicles to self-producing protocells

TYPE OF PRESENTATION: **OC**

CONFERENCE: BIOCOMP'10

PUBLICATION: Yes (Paper)

MEETING PLACE: Las Vegas, Nevada, USA,

DATES: 12-15 July 2010.

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AUTHORS (main presenter): G. Piedrafita, F. Mavelli, F. Morán & K. Ruiz-Mirazo

TITLE: On the transition from prebiotic to proto-biological membranes: from 'self-assembly' to 'self-production'.

TYPE OF PRESENTATION: **OC**

CONFERENCE: ECAL 2009: Darwin meets von Neumann

PUBLICATION: Yes (Paper)

MEETING PLACE: Budapest, Hungary.

DATES: 13-16 Sept. 2009.

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: From vesicles to protocells: early transitions in the origins of life.

TYPE OF PRESENTATION: **IL**

CONFERENCE: ILASOL 2008

PUBLICATION: No

MEETING PLACE: Weizmann Institute, Rehovot, Israel.

DATES: 28 de Dic. 2008.

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AUTHORS (main presenter): K. Ruiz-Mirazo & F. Mavelli

*TITLE: Prebiotically plausible functional compartments: a simulation model to study lipid-peptide protocell dynamics.*

*TYPE OF PRESENTATION: P*

*CONFERENCE: ISSOL'08 (International Society for the Study of the Origin of Life)*

*PUBLICATION: Yes (Abstract)*

*MEETING PLACE: Florence, Italy.*

*DATES: 24-29 August 2008.*

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*AUTHORS (main presenter): K. Ruiz-Mirazo, J. Umerez & A. Moreno*

*TITLE: Organizational requirements for open-ended evolution.*

*TYPE OF PRESENTATION: OC*

*CONFERENCE: ALifeXI*

*PUBLICATION: Yes (Abstract)*

*MEETING PLACE: Winchester, UK.*

*DATES: 5-8 August 2008.*

---

*AUTHORS (main presenter): A. Rendón, K. Ruiz-Mirazo & F.M. Goñi*

*TITLE: Experimental studies on the formation and stability of oleic acid vesicles*

*TYPE OF PRESENTATION: P*

*CONFERENCE: Portuguese-Spanish Biophysics Congress (SEPBS)*

*PUBLICATION: No*

*MEETING PLACE: Lisboa, Portugal.*

*DATES: 10-13 July, 2008.*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo, A. Moreno, J. Peretó & F. Mavelli*

*TITLE: Searching for minimal metabolisms: on the origins of regulatory control in protocell chemistry*

*TYPE OF PRESENTATION: P*

*CONFERENCE: European Conference on Synthetic Biology*

*PUBLICATION: No*

*MEETING PLACE: Sant Feliu de Guixols, Spain*

*DATES: 24-29 Noviembre, 2007.*

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*AUTHORS (main presenter): K. Ruiz-Mirazo & F. Mavelli*

*TITLE: Simulation Model for Functionalized Vesicles: Lipid-Peptide Integration in Minimal Protocells*

*TYPE OF PRESENTATION: OC*

*CONFERENCE: European Conference on Artificial Life (ECAL) 2007*

*PUBLICATION: Yes (Paper)*

*MEETING PLACE: Lisboa, Portugal.*

*DATES: 10-14 Septiembre, 2007.*

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*AUTHORS (main presenter): F. Mavelli & K. Ruiz-Mirazo*

*TITLE: Stochastic simulations of protocell models*

*TYPE OF PRESENTATION: OC*

*CONFERENCE: SPIE 2007 – Noise and Fluctuations in Biological, Biophysical and Biomedical Systems*

*PUBLICATION: Yes (Paper)*

*MEETING PLACE: Florence, Italy.*

*DATES: 20-24 May 2007.*

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo & A. Moreno

TITLE: *¿Puede la vida ser definida?*

TYPE OF PRESENTATION: **OC**

CONFERENCE: V Congreso SLMFCE (Sociedad del Lógica, Metodología y Filosofía de la Ciencia en España)

PUBLICATION: Yes (Short Paper)

MEETING PLACE: Granada, Spain.

DATES: 30 Nov. – 3 Dec. 2006.

---

AUTHORS (*main presenter*): A. Rendón, K. Ruiz-Mirazo & F.M. Goñi

TITLE: *Efecto de alcoholes y alcanos sobre el autoensamblamiento y estabilidad de vesículas de ácido oleico*

TYPE OF PRESENTATION: **P**

CONFERENCE: XXVI Congreso de la Sociedad Mexicana de Bioquímica

PUBLICATION: No

MEETING PLACE: Guanajuato, Mexico.

DATES: 12-17 Nov. 2006.

---

AUTHORS (*main presenter*): A. Moreno & K. Ruiz-Mirazo

TITLE: *On the relevance of the concept of autonomy for the origins of life research program.*

TYPE OF PRESENTATION: **L**

CONFERENCE: VIth HOPOS (International Society for the History and Philosophy of Science)

PUBLICATION: No

MEETING PLACE: Paris, France.

DATES: 14-18 June 2006.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo & F. Mavelli

TITLE: *Working towards basic autonomy: a simulation model to study minimal self-producing cells.*

TYPE OF PRESENTATION: **L**

CONFERENCE: AlifeX (Artificial Autonomy workshop)

PUBLICATION: No

MEETING PLACE: Bloomington, USA.

DATES: 3-7 June 2006.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: *Working towards the 'minimal cell': a bottom-up proposal.*

TYPE OF PRESENTATION: **OC (Invited)**

CONFERENCE: ISSOL'05 (International Society for the Study of the Origin of Life)

PUBLICATION: Yes (Short Paper)

MEETING PLACE: Beijing, China.

DATES: 19–24 June 2005.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo & A. Moreno

TITLE: *(Basic) autonomy: a fundamental concept to understand the origins and nature of living systems.*

TYPE OF PRESENTATION: **L**

CONFERENCE: ISHPSSB'03 (International Society for the History, Philosophy and Social Studies of Biology)

PUBLICATION: No

MEETING PLACE: Viena, Austria.

DATES: 16-20 July 2003.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo, J. Peretó & A. Moreno.

TITLE: Proposal for a universal definition of life.

TYPE OF PRESENTATION: **OC**

CONFERENCE: ISSOL'02 (International Society for the Study of the Origin of Life)

PUBLICATION: Yes (abstract)

MEETING PLACE: Oaxaca, México.

DATES: 30 June – 5 July 2002.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo.

TITLE: Las raíces del concepto de autonomía en biología: una crítica a la idea de autopoiesis

TYPE OF PRESENTATION: **OC**

CONFERENCE: III Congreso SLMFCE (Sociedad del Lógica, Metodología y Filosofía de la Ciencia en España)

PUBLICATION: Yes (Short Paper)

MEETING PLACE: San Sebastián-Donostia, Spain.

DATES: 26-29 April 2000.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo, A. Moreno, J. Peretó, F. Morán, & J.J. Merelo.

TITLE: Designing a simulation model of a self-maintaining cellular system

TYPE OF PRESENTATION: **OC**

CONFERENCE: ECAL '99 (5th International European Conference on Artificial Life)

PUBLICATION: Yes (Paper)

MEETING PLACE: Lausanne, Switzerland.

DATES: 13-17 Sept. 1999.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: A conceptual approach to the idea of organism

TYPE OF PRESENTATION: **OC**

CONFERENCE: ISHPSSB'99 (International Society for the History, Philosophy and Social Studies of Biology)

PUBLICATION: Yes (Paper)

MEETING PLACE: Oaxaca, Mexico.

DATES: 7-11 July 1999.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo & A. Moreno

TITLE: Autonomy and emergence: how systems become agents through the generation of functional constraints.

TYPE OF PRESENTATION: **OC**

CONFERENCE: Third International Conference on 'Emergence, Complexity, Hierarchies and Organization' (ECHO III)

PUBLICATION: Yes (Paper)

MEETING PLACE: Helsinki, Finland.

DATES: 3-7 August 1998.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo, A. Moreno & F. Morán  
TITLE: *Merging the energetic and the relational-constructive logic of life*  
TYPE OF PRESENTATION: **P**  
CONFERENCE: ALIFE VI (*International Conference on Artificial Life*)  
PUBLICATION: Yes (*Paper*)  
MEETING PLACE: Los Angeles, USA.  
DATES: 26-29 June 1998.

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## CONTRIBUTIONS TO WORKSHOPS/COURSES/SYMPOSIA

KEY: P=Poster; OC = Oral Communication (aprox. 20 min.); L=Lecture (aprox. 1h.); IL=Invited Lecture (travel and/or accommodation expenses covered by the organization); O=others (specify)

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AUTHORS (*main presenter*): Alvaro Moreno & K. Ruiz-Mirazo  
TITLE: *Philosophical problems about the origins of life (On the role of philosophy in the 'origins-of-life' research field).*  
TYPE OF PRESENTATION: **IL**  
WORKSHOP/COURSE: *Fifth EASPLS (European Advanced Seminar in the Philosophy of the Life Sciences): 'Interdisciplinarity in the Life Sciences and Their Philosophy'.*  
PUBLICATION: No.

MEETING PLACE: Konrad Lorenz Institute (KLI), Klosterneuburg (Vienna), Austria.  
DATES: 10-14 Sept, 2018.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: *Information as a principle of organization for biology: reinterpreting the concept to understand the complexity of living systems and their evolutionary potential.*  
TYPE OF PRESENTATION: **IL**  
WORKSHOP/COURSE: *Beilstein Symposium 2018: 'Information and Noise: Chemistry, Biology and Evolution Creating Complex Systems'.*  
PUBLICATION: No.

MEETING PLACE: Rüdesheim, Germany.  
DATES: 5-7 June, 2018.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: *Emergence and evolutionary development of protocells.*  
TYPE OF PRESENTATION: **IL**  
WORKSHOP/COURSE: *International Workshop -- 'Life on Earth and Beyond: emergence, survivability and impact on the environment'.*  
PUBLICATION: No.

MEETING PLACE: Bertinoro, Italy.  
DATES: 19-24 March, 2018.

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AUTHORS (*main presenter*): K. Ruiz-Mirazo & Eva Portillo  
TITLE: *Fostering entrepreneurship among PhD students: a report on the 2017 UPPA-UPV/EHU Cross-Border "Doctorials" in Arantzazu (Basque Country).*  
TYPE OF PRESENTATION: **OC**

WORKSHOP/COURSE: 11<sup>th</sup> EUA-CDE Workshop -- 'The impact and outcomes of doctoral education reform in Europe'.

PUBLICATION: No.

MEETING PLACE: Valletta, Malta.

DATES: 18-19 Enero 2018.

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: El origen de la vida o cómo la material se organiza para dar lugar a los seres vivos.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: Mestizajes 2017 (3<sup>a</sup> edición).

PUBLICATION: No.

MEETING PLACE: Donostia International Physics Centre (DIPC), San Sebastián – Donostia, Spain.

DATES: 23-25 Oct., 2017.

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Searching for the principles of biological organization through a 'systems chemistry' approach

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: International Workshop – 'Organization as a theoretical principle for biology'.

PUBLICATION: No.

MEETING PLACE: Paris (IHPST Centre), France.

DATES: 27-29 Sept., 2017.

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Vida y computación: ¿forzando un idilio imposible?

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: Escuela de verano en 'vida, cognición e interacción'.

PUBLICATION: No.

MEETING PLACE: Centro eTopía de arte y tecnología, Zaragoza, Spain.

DATES: 3-14 July, 2017.

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: The origins of metabolic systems from compartmentalized and heterogeneous chemistries: a simplified but non-reductionist approach.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: KLI Symposium on 'Chemical and Biological Organization'.

PUBLICATION: No.

MEETING PLACE: Klosterneuburg (Vienna), Austria.

DATES: 19 May, 2017.

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: On the chemical roots of biological 'inter-identity'.

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: 2<sup>nd</sup> 'Bordeaux-San Sebastian Workshop on Philosophy of Biology'.

PUBLICATION: No.

MEETING PLACE: Université de Bordeaux (Pey Berland Salon d'honneur), Bordeaux, France.

DATES: 10 - 11 April, 2017.

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: No vesicle, no life: chemistry without dynamic compartments will never turn biological.*

*TYPE OF PRESENTATION: **IL***

*WORKSHOP/COURSE: Workshop on 'Integration of metabolic and compartmentalization subsystems' (WG3 -- COST-Action CM1304).*

*PUBLICATION: No.*

*MEETING PLACE: Warsaw, Poland.*

*DATES: 30 March - 1 April, 2017.*

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*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Grasping the core of biological complexity: autonomy and open-ended evolution.*

*TYPE OF PRESENTATION: **IL***

*WORKSHOP/COURSE: Emergence and Evolution of Biological Complexity Meeting.*

*PUBLICATION: No.*

*MEETING PLACE: NCBS, Bangalore, India.*

*DATES: 4-6 Feb, 2017.*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Prebiotic systems evolution as a process of protocell development.*

*TYPE OF PRESENTATION: **IL***

*WORKSHOP/COURSE: 5<sup>th</sup> ELSI International Symposium: 'Expanding views on the emergence of the biosphere'.*

*PUBLICATION: No.*

*MEETING PLACE: Tokyo, Japan.*

*DATES: 11 – 13 Jan., 2017*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE (I): Shall we ever understand biological complexity?*

*TITLE (II): No option but to simplify: recent insights from systems chemistry, synthetic biology and origins of life.*

*TYPE OF PRESENTATION: **IL (double session)***

*WORKSHOP/COURSE: Workshop in Biomedicine 2016.*

*PUBLICATION: No.*

*MEETING PLACE: Santander, Spain.*

*DATES: 3-14 Oct. 2016*

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*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Life as a complex chemical game.*

*TYPE OF PRESENTATION: **IL***

*WORKSHOP/COURSE: International Workshop -- 'Evolution of Chemical Complexity: From simple interstellar molecules to biopolymers' (COST Action CM1304 & TD1308 joint meeting).*

*PUBLICATION: No.*

*MEETING PLACE: Liblice, Czech Republic.*

*DATES: 14-15 Sept. 2016*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

TITLE: *Stability and variation in prebiotic systems chemistry.*

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: *International Workshop – ‘Stability and variation in biological systems’.*

PUBLICATION: No.

MEETING PLACE: *Donostia-San Sebastián, Spain.*

DATES: *5-6 July, 2016*

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: *Major prebiotic transitions as stages of protocellular development.*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *Beilstein Symposium 2016: ‘Chemistry, Life and Evolution’.*

PUBLICATION: Yes.

MEETING PLACE: *Prien, Germany.*

DATES: *31 May – 2 June, 2016*

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AUTHORS (*main presenter*): Alvaro Moreno & K. Ruiz-Mirazo

TITLE: *Why we should worry about the definition of life.*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *International Workshop – Understanding Life: new perspectives from philosophy and biology.*

PUBLICATION: Yes (*forthcoming*).

MEETING PLACE: *Bern, Switzerland.*

DATES: *26-27 May, 2016*

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AUTHORS (*main presenter*): K. Ruiz-Mirazo & Alvaro Moreno

TITLE: *Autonomy and open-ended evolution: epistemological bases for a universal biology.*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *International Workshop – Understanding Life: new perspectives from philosophy and biology.*

PUBLICATION: No.

MEETING PLACE: *Bern, Switzerland.*

DATES: *26-27 May, 2016*

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: *A new scenario to address the problem of origins of life: the ‘systems chemistry’ challenge.*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *PKSymposium (Celebrating the 75<sup>th</sup> Anniversary of Peter Schuster) -- Chemolution: from chemistry to evolution.*

PUBLICATION: No.

MEETING PLACE: *Vienna, Austria.*

DATES: *19-20 May, 2016*

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: *Integrating prebiotic peptide chemistry and fatty acid self-assembly dynamics: a crude but realistic ‘bottom-up’ approach to biogenesis.*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *SysChem2016 (CM 1304 COST Action Meeting).*

PUBLICATION: No.

MEETING PLACE: Valtice, Czech Republic.

DATES: 8-12 May, 2016

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: Emergent chemical behaviour in variable-volume protocells.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: International Workshop 'Emergence in chemical systems 4.0'.

PUBLICATION: No.

MEETING PLACE: Anchorage (Alaska), USA.

DATES: 22-27 June, 2015

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AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: Life requires chemistry making its own dynamic boundaries.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: SysChem2015 (CM 1304 COST Action Meeting).

PUBLICATION: No.

MEETING PLACE: Rolduc Abbey, Kerkrade, Holand.

DATES: 19-22 May, 2015

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AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: On the phenomenal width of the chemical-biological divide.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: Workshop 'Origins of life: history and philosophy of astrobiology'.

PUBLICATION: No.

MEETING PLACE: Höör, Sweden.

DATES: 8-10 May, 2015

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

TITLE: Is current biology up to the challenge of defining life?

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: Summer School 'Life on Earth and beyond: the history and philosophy of origins of life'.

PUBLICATION: No.

MEETING PLACE: Ven Island, Sweden.

DATES: 3-7 May, 2015

---

AUTHORS (*main presenter*): G. Piedrafita & K. Ruiz-Mirazo

TITLE: Protocell development through lipid endogenesis: a semi-empirical approach.

TYPE OF PRESENTATION: **OC**

WORKSHOP/COURSE: Workshop on 'Vesicle permeability' (WG3 Meeting – COST-Action 1304).

PUBLICATION: Yes.

MEETING PLACE: Parmenides Foundation, Pullach (Münich), Germany.

DATES: 21-22 Nov., 2014

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AUTHORS (*main presenter*): K. Ruiz-Mirazo

*TITLE: 'Synthetic protocell philosophy': fabricating new ontological constructs, in vitro and in silico, to establish more solid epistemological bases for biology.*

*TYPE OF PRESENTATION: IL*

*WORKSHOP/COURSE: Third European Advanced Seminar in the Philosophy of the Life Sciences.*

*PUBLICATION: Yes (forthcoming).*

*MEETING PLACE: KLI Institute, Klosterneuburg (Vienna), Austria.*

*DATES: 1-5 Sept., 2014*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Vesicles, protocells and artificial cells: constructing a more plausible scenario for the origins of life?*

*TYPE OF PRESENTATION: IL*

*WORKSHOP/COURSE: Workshop on Origins, Evolution and Future of the Biosphere. (Erasmus IP)*

*PUBLICATION: No.*

*MEETING PLACE: Banyuls, France.*

*DATES: 18-29 August, 2014*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo & S. Murillo Sánchez*

*TITLE: From self-assembly to biological organization: 'the minimal 'lipid-peptide protocell' model*

*TYPE OF PRESENTATION: OC*

*WORKSHOP/COURSE: SYSCHEM 2014 – COST Action CM1304 (Emergence and Evolution of Complex Chemical Systems) Meeting.*

*PUBLICATION: No.*

*MEETING PLACE: P. Miramar, Donostia-San Sebastián, Basque Country.*

*DATES: 9-12 June, 2014*

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*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Potencial y limitaciones de la Biología Sintética.*

*TYPE OF PRESENTATION: O (Round Table – invited participant)*

*WORKSHOP/COURSE: Café científico sobre biología sintética (CRG -- Centro de Regulación Genómica)*

*PUBLICATION: No.*

*MEETING PLACE: Biblioteca Nacional de Catalunya, Barcelona, Spain.*

*DATES: 21 May, 2013*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Sobre la naturaleza y el origen de la evolución biológica.*

*TYPE OF PRESENTATION: IL*

*WORKSHOP/COURSE: Día Darwin 2014*

*PUBLICATION: No.*

*MEETING PLACE: Univesitat de València, Valencia, Spain.*

*DATES: 13 Feb., 2014*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: On life's nature and the intrinsic limits of Synthetic Biology.*

*TYPE OF PRESENTATION: OC*

*WORKSHOP/COURSE: SMLC 2013 International Workshop: Synthetic Modeling of Life and Cognition – Open Questions*

*PUBLICATION: No.*

MEETING PLACE: Bergamo, Italy.

DATES: 12-14 Sept., 2013

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Beyond self-assembling vesicles: protocells as prebiotic model systems

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: Workshop on Origins, Evolution and Future of the Biosphere. (Erasmus IP)

PUBLICATION: No.

MEETING PLACE: Banyuls, France.

DATES: 19-30 August, 2013

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Advances and new challenges in the study of the origins of life.

TYPE OF PRESENTATION: **IL (Open Public Lecture)**

WORKSHOP/COURSE: International Summer School in Astrobiology: Biosignatures – The Fingerprints of Life

PUBLICATION: No.

MEETING PLACE: Palacio de la Magdalena, Santander, Spain.

DATES: 24-28<sup>th</sup> June, 2013

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Understanding life through its origins.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: International Workshop on Education in Astrobiology

PUBLICATION: No.

MEETING PLACE: Höör, Sweden.

DATES: 6-9<sup>th</sup> June, 2013

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Simulation of compartmentalized chemical supersystems.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: Lake Balaton Meeting on Systems Chemistry (in memory of Tibor Ganti)

PUBLICATION: Yes (forthcoming).

MEETING PLACE: Badacsony, Hungary.

DATES: 8-12 May, 2013

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: On the origin of self-constructing systems: coupling chemistry with compartments.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: COOL-EDGE Workshop 2013 (Origins of Life Initiative at CERN)

PUBLICATION: No.

MEETING PLACE: CERN, Gèneve, Switzerland.

DATES: 26<sup>th</sup> Feb. – 01 March, 2013

---

AUTHORS (main presenter): K. Ruiz-Mirazo & A. Moreno

TITLE: Synthetic Biology: challenging life in order to grasp, use or extend it.

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *International Workshop on Ethical, Philosophical and Political Issues of Synthetic Biology*

PUBLICATION: Yes.

MEETING PLACE: *Centre for Human and Social Sciences – CSIC, Madrid, Spain.*

DATES: 11<sup>th</sup>., 2013

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: *From protocells to minimal cells: models and experimental vesicle systems*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *Workshop on Origins, Evolution and Future of the Biosphere. (Erasmus IP)*

PUBLICATION: No.

MEETING PLACE: *Banyuls, France.*

DATES: 20-31 August, 2012

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AUTHORS (main presenter): F. Mavelli & K. Ruiz-Mirazo

TITLE: *Self-producing and re-producing protocells: conditions for stationary division cycles*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *Chembiogenesis 2011: ‘systems chemistry’ (COST Action CM0703 -- Final Meeting).*

PUBLICATION: No.

MEETING PLACE: *Heraklion, Crete.*

DATES: 27-30 Oct., 2011

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: *The challenge to synthesize protocells ‘bottom-up’: current in vitro and in silico approaches*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *Synthesis: Interdisciplinary Interconnections in Synthetic Biology.*

PUBLICATION: Yes (special issue in *Biological Theory* – forthcoming)

MEETING PLACE: *ZiF, Bielefeld, Germany*

DATES: 30 Sept. – 1 Oct., 2011

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: *Protocell chemistry as a way to search for the natural roots of autonomy, function and agency.*

TYPE OF PRESENTATION: **IL**

WORKSHOP/COURSE: *Bridging Chemistry and Biology in the search for the Origins of Life: Historical and Philosophical Perspectives.*

PUBLICATION: No

MEETING PLACE: *Ecole Normale Supérieure, Paris, France.*

DATES: 30 June – 1 July, 2011

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: *Basic autonomy: from self-organisation to self-construction.*

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: *Colloque International Philosophie de la Biologie: ‘Self-Organization in Biology’ (Université de Provence, CREA, Paris, and IAS Research Group, San Sebastian)*

PUBLICATION: No

MEETING PLACE: *Aix-en-Provence, France.*



DATES: 24 – 25 May, 2011

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Taking a strong 'bottom-up' approach to the origins of life: How far can prebiotically plausible molecules go?.

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: Brainstorming Workshop on the Question of the Origins of Life. (CERN)

PUBLICATION: No

MEETING PLACE: CERN, Geneva, Switzerland.

DATES: 20 May, 2011

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Bottom-up strategies towards the synthesis of minimal (living?) cells.

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: First Summer School on Life and Cognition (UPV/EHU – CREA, Paris)

PUBLICATION: No

MEETING PLACE: San Sebastián – Donostia, Spain.

DATES: 22 – 26 June, 2010

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: Molecular and systemic perspectives on the origins of life.

TYPE OF PRESENTATION: **L**

WORKSHOP/COURSE: Workshop in Biotechnology and Biomedicine (Cantabria University)

PUBLICATION: No

MEETING PLACE: Santander, Spain.

DATES: 25 Jan – 5 Feb, 2010

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AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: On the lipid-peptide minimal cell scenario.

TYPE OF PRESENTATION: **OC (Invited)**

WORKSHOP/COURSE: Systems Chemistry II: Evolution and Systems (ESF-COST Research Conferences)

PUBLICATION: No

MEETING PLACE: Lake Balaton, Hungary.

DATES: 18-23 Oct. 2009.

---

AUTHORS (main presenter): K. Ruiz-Mirazo

TITLE: A systems view on defining the boundaries of the problem of origins of life.

TYPE OF PRESENTATION: **OC**

WORKSHOP/COURSE: OQOL'09 (International Workshop 'Open Questions on the Origins of Life 2009)

PUBLICATION: Yes (extended abstract)

MEETING PLACE: Palacio Miramar, Donostia – San Sebastián, Spain.

DATES: 20-23 May 2009.

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AUTHORS (main presenter): G. Piedrafita, F. Olasagasti, K. Ruiz-Mirazo, J. Peretó, A. Moreno, F. Montero & F. Morán

TITLE: Conceptual bases for the emergence of early protocells

TYPE OF PRESENTATION: **OC**

WORKSHOP/COURSE: OQOL'09 (*International Workshop 'Open Questions on the Origins of Life 2009'*)  
PUBLICATION: Yes (*extended abstract*)

MEETING PLACE: *Palacio Miramar, Donostia – San Sebastián, Spain.*  
DATES: 20-23 May 2009.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: *Minimal protocell models.*  
TYPE OF PRESENTATION: **OC (Invited)**  
WORKSHOP/COURSE: *Workshop on Theoretical Biology (NAP Project)*  
PUBLICATION: No

MEETING PLACE: *Collegium Budapest, Budapest, Hungary.*  
DATES: 13-31 Oct. 2008

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AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: *Modelling Prebiotic Cells: Lipid-Peptide Integration in Primitive Membranes*  
TYPE OF PRESENTATION: **L**  
WORKSHOP/COURSE: *Advanced Topics in Cell Model Systems (Summer School)*  
PUBLICATION: No

MEETING PLACE: *Tor Vergata, Rome, Italy.*  
DATES: 8-13 June 2008

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AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: *Beyond self-organization: hypothetical mechanisms for self-construction.*  
TYPE OF PRESENTATION: **L**  
WORKSHOP/COURSE: *Int. Workshop 'Explanations in Biology'*  
PUBLICATION: No

MEETING PLACE: *San Sebastián -- Donostia, Spain.*  
DATES: 7 April 2008

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo, A. Moreno & J. Peretó  
TITLE: *Defining life: why, how and what for.*  
TYPE OF PRESENTATION: **IL**  
WORKSHOP/COURSE: *Colloque 'Définir la vie/Defining Life'*  
PUBLICATION: Yes (*Paper*)

MEETING PLACE: *Muséum National d'Histoire Naturelle, Paris, France.*  
DATES: 4-5 Feb. 2008

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: *Stochastic modelling of minimal proto-metabolic cells.*  
TYPE OF PRESENTATION: **IL**  
WORKSHOP/COURSE: *Symposium on Systems Biology and Metabolic Networks (in the memory of Prof. Reinhardt Heinrich)*  
PUBLICATION: No

MEETING PLACE: *Madrid, Spain.*  
DATES: 6-8 June 2007

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo

*TITLE: Functional protocells as the main challenge of present synthetic biology.*

*TYPE OF PRESENTATION: IL*

*WORKSHOP/COURSE: Workshop on Synthetic Biology*

*PUBLICATION: No*

*MEETING PLACE: Collège d'Espagne, Paris, France.*

*DATES: 1-2 June 2007*

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*AUTHORS (main presenter): K. Ruiz-Mirazo & F. Mavelli*

*TITLE: Simulation model for primitive functionalized vesicles: lipid-peptide integration in closed membranes*

*TYPE OF PRESENTATION: P*

*WORKSHOP/COURSE: Prebiotic Chemistry and Early Evolution (COST Action D27: Final evaluation meeting)*

*PUBLICATION: Yes (Abstract)*

*MEETING PLACE: Dubrovnik, Croatia.*

*DATES: 11-13 May 2007*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo*

*TITLE: Critical remarks on 'The origins of molecular autonomous agent by natural selection' (by Chrisantha Fernando & Jon Rowe)*

*TYPE OF PRESENTATION: OC*

*WORKSHOP/COURSE: Modelling biological and cognitive autonomy.*

*PUBLICATION: Yes (Paper)*

*MEETING PLACE: San Sebastián – Donostia, Spain.*

*DATES: 22-23 March 2007*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo & F. Mavelli*

*TITLE: Stochastic simulations of protocell dynamics*

*TYPE OF PRESENTATION: P*

*WORKSHOP/COURSE: Chembiogenesis 2006 – Systems Chemistry (COST Chemistry -- Action D27)*

*PUBLICATION: No.*

*MEETING PLACE: Institute d'Estudis Catalans, Barcelona, Spain.*

*DATES: 15-17 Dec. 2006*

---

*AUTHORS (main presenter): F. Mavelli & K. Ruiz-Mirazo*

*TITLE: Bridging the gap between in silico and in vitro approaches to minimal (living?) cells.*

*TYPE OF PRESENTATION: L*

*WORKSHOP/COURSE: International School on Complexity: 'Basic questions about the origins of life'*

*PUBLICATION: Yes (Abstract).*

*MEETING PLACE: Erice, Sicilia, Italy.*

*DATES: 2-6 Oct. 2006.*

---

*AUTHORS (main presenter): K. Ruiz-Mirazo & F. Mavelli*

*TITLE: Modelling minimal lipid-peptide cells.*

*TYPE OF PRESENTATION: IL*

*WORKSHOP/COURSE: International School on Complexity: 'Basic questions about the origins of life'*

*PUBLICATION: Yes (Abstract).*

MEETING PLACE: Erice, Sicilia, Italy.  
DATES: 2-6 Oct. 2006.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: Working towards basic autonomy: a simulation model to study minimal self-re-producing cells.  
TYPE OF PRESENTATION: **L**  
WORKSHOP/COURSE: Int. Workshop 'Organizational Principles in Biology'  
PUBLICATION: No.

MEETING PLACE: San Sebastián – Donostia, Spain.  
DATES: 27-28 April 2006.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo & F. Mavelli  
TITLE: Simulation model of a minimal self-maintaining lipid-peptide cell.  
TYPE OF PRESENTATION: **P**  
WORKSHOP/COURSE: Chembiogenesis 2005 (COST Chemistry -- Action D27)  
PUBLICATION: No.

MEETING PLACE: Venice International Univ., Venice, Italy.  
DATES: 28 Sept. – 1 Oct. 2005.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo  
TITLE: Informational constraints: the last step of the origin of life and the beginning of open-ended evolution.  
TYPE OF PRESENTATION: **IL**  
WORKSHOP/COURSE: Workshop on Evolution, Information and Computation: from living to non-living matter  
PUBLICATION: No.

MEETING PLACE: European Center for Living Technology, Venice, Italy.  
DATES: 22 – 27 May 2005.

---

AUTHORS (*main presenter*): K. Ruiz-Mirazo & P. L. Luisi  
TITLE: Interaction of basic proteins and peptides with oleate vesicles.  
TYPE OF PRESENTATION: **P**  
WORKSHOP/COURSE: Third Workshop on Prebiotic Chemistry and Early Evolution (COST Chemistry -- Action D27)  
PUBLICATION: No.

MEETING PLACE: Hersonissos, Crete, Greece.  
DATES: 30 Sept. – 3 Oct. 2004.

---

**TITLE:** *Desarrollo de un modelo semiempírico de sistema protocelular automantenido con cierre metabólico.*

Ph. D. STUDENT: **Gabriel Piedrafita (FPU Scholarship)**

UNIVERSITY: **Complutense de Madrid**

FACULTY/SCHOOL: **Faculty of Sciences**

YEAR: **2013** (19/07/13)

MARK: **DISTINCTION 'CUM LAUDE'** (unanimously)

---

**TITLE:** *Modelling early transitions toward autonomous protocells.*

Ph. D. STUDENT: **Ben Shirt-Ediss (UPF Contract)**

UNIVERSITY: **Basque Country (UPV/EHU)**

FACULTY/SCHOOL: **Faculty of Philosophy**

YEAR: **2016** (09/02/16)

MARK: **DISTINCTION 'CUM LAUDE'** (unanimously)

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\*\*\* This PhD was awarded '**Premio Extraordinario de Doctorado**' by the Univ. of the Basque Country

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**TITLE:** *Los orígenes de la individualidad y la función biológicas: una aproximación a través de la química de sistemas.*

Ph. D. STUDENT: **Sara Murillo-Sánchez (UPV/EHU PhD Scholarship)**

UNIVERSITY: **Basque Country (UPV/EHU)**

FACULTY/SCHOOL: **Faculty of Philosophy**

YEAR: **2017** (07/09/17)

MARK: **DISTINCTION 'CUM LAUDE'** (unanimously)

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**REFeree RESEARCHERS**

(Up to 3 researchers' names may be given by applicant to give references.  
Compliance of this section is not compulsory for the applicant)

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SURNAMES, NAME: **MORENO BERGARECHE, ALVARO**

PROFESSIONAL RELATIONSHIP WITH APPLICANT: **MENTOR AND COLLABORATOR**  
(Professor-tutor, Research director, Employee-boss, Collaborator, Others)

LENGTH OF RELATIONSHIP (give dates): **STARTING FROM 1996**

BODY TO WHICH YOU BELONG TODAY: **UNIVERSITY OF THE BASQUE COUNTRY, SPAIN**  
(Institution and country)

POST: **FULL PROFESSOR**

TELEPHONE: **+34 943018249**

E-MAIL: **alvaro.moreno@ehu.es**

---

SURNAMES, NAME: **LUISI, PIER LUIGI**

PROFESSIONAL RELATIONSHIP WITH APPLICANT: **RESEARCH DIRECTOR DURING POSTDOC**  
(Professor-tutor, Research director, Employee-boss, Collaborator, Others)

LENGTH OF RELATIONSHIP (give dates): **STARTING FROM 2003**

BODY TO WHICH YOU BELONG TODAY: **UNIVERSITY ROMA TRE, ITALY**  
(Institution and country)

POST: **FULL PROFESSOR**

TELEPHONE: **+39 0655176329**

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---

SURNAMES, NAME: **GOÑI URCELAY, FELIX**

PROFESSIONAL RELATIONSHIP WITH APPLICANT: **RESEARCH DIRECTOR & COLLABORATOR**  
(Professor-tutor, Research director, Employee-boss, Collaborator, Others)

LENGTH OF RELATIONSHIP (give dates): **STARTING FROM 2005**

BODY TO WHICH YOU BELONG TODAY: **UNIVERSITY OF THE BASQUE COUNTRY, SPAIN**  
(Institution and country)

POST: **FULL PROFESSOR, BIOFISIKA INSTITUTE (CSIC -- UPV/EHU).**

TELEPHONE: **+34 946012625**

E-MAIL: **felix.goni@ehu.es**

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**OTHER ACHIEVEMENTS**  
(in two DIN A4 pages at most)

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- **Personal Grants/Awards:**

**Included in the (MICCIN) I3 Program -- 2011** (Excellence in Research Trajectory).

**Excellent PhD Dissertation Award**, by the University of the Basque Country (UPV-EHU), 2004.

**Post-doctoral (Mod. E) fellowship** provided by the Basque Government to re-join Alvaro Moreno's research group on philosophy of biology. (Oct 2005 – Dec. 2006).

**FPI Post-doctoral fellowship** provided by the MECD (Spanish Government) to collaborate with Pier Luigi Luisi's group at ETH-Zürich (Switzerland: February – September 2003) and in Rome, Italy (Dept. of Biology, Roma Tre University: January 2004 – March 2005).

**Post-doctoral fellowship** provided by the National Institute of Aerospace Technology (INTA) of the Spanish Government to work at the Centre for Astrobiology (CAB) in Madrid (April 2002 - September 2002)

**Invited researcher** (all sustenance costs covered by the host) for a two-month stay (July-September, 1999) at the University of Newcastle (Australia), to work with the Complex Dynamic Systems Research Group, led by Professor Cliff A. Hooker.

**Invited student** (all sustenance costs covered by the host) to the "1998 Complex Systems Summer School", organized by the Santa Fe Institute (SFI), held at The College of Santa Fe, New Mexico, USA, during the four weeks of June 1998.

**Pre-doctoral fellowship** provided by the University of the Basque Country (UPV-EHU), during 4 consecutive years, to do research leading to the development of a Ph. D. dissertation on "Physical conditions for the appearance of autonomous systems with open-ended evolutionary capacities". (October 1996 - November 2000) -- *Excellent Dissertation Award* (2004).

**Erasmus grant** (for 'post-graduates') to stay at the University of Notre Dame de la Paix of Namur (Belgium) and carry out the second half (6 months) of the Master in "European Studies on Society, Science and Technology" (March-Sept. 1995).

- **Organization of conferences/workshops/summer schools (incl. fund raising):**

**Main organizer (Local Chair)** of the Workshop '**SYSCHEM 2014**' held at Palacio Miramar, San Sebastian-Donostia, Spain (9-12 June 2014). This was a Meeting of the COST-Action CM1304 (Emergence and Evolution of Complex Chemical Systems), with additional financial support from the Basque Government (7.500 €, for student grants) and the University of the Basque Country (4.500 €, local expenses). Aprox. global budget: **80.000 €**. Number of attendants: 90, mainly European and some from the United States. More info at: <http://www.systemschemistry.com/cm1304/activities.html>

**Main organizer** (together with Prof. P. L. Luisi) of the International Workshop '**Open Questions on the Origins of Life**' held at Palacio Miramar, San Sebastian-Donostia, Spain (20-23 May 2009). Aprox. global budget: **40.000 €** (15.200 € from the Basque Government, 8.000€ from MICINN, 7.000€ from UPV/EHU, 1.000€ from CSIC, 2.500€ from a private enterprise (Kutxa), and the rest from registration fees. More info at: <http://oqol2009.wordpress.com/>

**Co-organizer** (together with other members of the IAS Research Group, UPV/EHU, and CREA, from Paris) of the '**First Summer School on Life and Cognition**' held at Palacio Miramar, in San Sebastian-Donostia, on the 22-26 of June 2010 (Further info at the webpage: <http://www.lifecognitionschool.eu/> ).

**Main organizer** (together with Xabier Barandiaran, from the IAS Research Group) of the International Workshop '**Modelling biological and cognitive autonomy**' held at the

UPV/EHU in San Sebastian-Donostia (22-23 March 2007). Aprox. global budget: **6.000** € (4.100€ from the 'EuCognition' Program and 1.632€ from 'Kutxa')

**Co-organizer** (together with other members of the IAS Research Group) of one- or two-day National and International Workshops held in San Sebastian-Donostia over the years ('**Synthetic Biology: past, present and future**', '**Stability and Variation in Biological Systems**', '**Explanations in Biology**', '**Seminario sobre Funciones**', '**On the chemoton and other proto-metabolic models**' '**Organizational Principles in Biology**', '**Definition of life**', etc.)

For further information, see our webpage: <http://www.ehu.es/ias-research>).

- ***Invited Lecturer for Seminars at different (national and international) Research Centres:***

**Invited Lecturer** (accommodation/sustenance/travel costs, covered by the host centre) at: **University College London (UCL)**, London, UK (May 2018); **University of Cantabria (IBBTEC)**, Santander (July 2017); **University of Trento (CIBIO)**, Italy (Nov. 2016); **Konrad Lorenz Institute (KLI)**, Vienna, Austria (May 2016); **University of Cambridge**, UK (April 2015); **CIB** (Spanish National Centre for Biological Research) Madrid, Spain (March 2015) **University of Tokyo (Kobama)**, Japan (July 2014); **Centre for Astrobiology (CAB)**, Torrejón de Ardoz, Spain (May 2014; April 2016); **Friedrich-Schiller Universitat**, Jena, Germany (March 2013); **Gulbenkian Institute**, Oeiras, Portugal (July 2011); **FLinT**, Southern Denmark University (June 2010); **CREA**, Paris (Feb. 2010); **IBI** (Institute for Biocomplexity and Informatics) Univ. of Calgary (Dec. 2009); **Collegium Budapest**, Hungary (Oct. 2008); **ECLT** (European Centre for Living Technology) Venice, Italy (May 2005); **CNB** (Spanish National Centre for Biotechnology) Madrid, Spain (March 2003).

- ***Current lecturing activity at the UPV/EHU (responsible for the following subjects):***

**Systems Biology** (1st semester, 4.5 ECTS, Faculty of Science and Technology); **Philosophy of Biology and Cognitive Sciences** (Partly: 2 ECTS, Masters on Philosophy, Science and Values); **Introduction to Scientific Research – Philosophy of Science** (Partly: 1.5 ECTS, Masters on Chemistry and Polymers); **Cell and Molecular Biology of Membranes** (Partly: 0.2 ECTS, Masters on Molecular Biology & Biomedicine).

- ***Editor/Reviewer of International Journals:***

**Member** of the **Editorial Board** of *Origins of Life and Evolution of Biospheres* (Springer) and of *ChemSystemsChem* (Wiley).

Frequent **Reviewer** of manuscripts submitted for publication to: *Biology & Philosophy* (Kluwer/Springer, ISSN 0169-3867), *Artificial Life* (MIT Press, ISSN 1064-5462), *Origins of Life and Evolution of the Biosphere* (Kluwer/Springer, ISSN 0169-6149), *BioSystems* (Elsevier, ISSN 0039-7857), *Journal of Biological Theory* (Elsevier, ISSN: 0022-5193), *Biological Theory* (MIT Press, ISSN 1555-5542), *Journal of Theoretical Biology* (Academic Press, ISSN 0022-5193) and other scientific journals like *Nature Communications*, *Scientific Reports*, *Angewandte Chemie*, *Open Biology*, or *Plos ONE*.

- ***Positive evaluations of research activity:***

**3 'Sexenios'** (last one: 2012-2017). **Basque Segments B1-B2** (B3 under evaluation) Unibasq 'habilitation' as '**Full Research Professor**' (in Humanities). April 2018.