

Fabien Aubry

Age: 28 – French

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Postdoc Position

PhD graduate in Human Pathology
- Infectious Diseases -
Aix-Marseille University

Executive Summary

- Molecular virologist with five years experience in development of reverse genetic systems and characterization of viral attenuation mechanisms
- Experienced in manipulating highly pathogenic BSL-3/BSL-3+ viruses (Japanese encephalitis virus, Tick-Borne encephalitis virus, West-Nile virus, Yellow fever virus, Dengue virus, Chikungunya virus)
- Published four first author and three co-author manuscripts in high-quality research journals
- Research resulted in two patent for the rapid production of wild type and attenuated RNA viruses
- Trained the unit research staff on the newly developed reverse genetic method

Research Projects

Postdoctoral Fellow, advisor: Pr Xavier de Lamballerie, Aix-Marseille University, France

“Large-scale genomic re-encoding of RNA viruses for producing live-attenuated vaccine candidates”

- Production of re-encoded constructs for attenuated TBEV vaccine candidates
- Evaluation of replicative fitness in cell cultures
- Infection of animals with re-encoded TBEVs and infectious challenge with wild-type virus
- Use of re-encoded TBEVs as backbones for the production of attenuated chimera in which structural genes of two TBEV-related viruses (Langat virus and Alkhurma virus) are inserted

PhD Student, advisor: Pr Xavier de Lamballerie, Aix-Marseille University, France

“Development and applications of a new reverse genetics method for the generation of single-stranded positive-sense RNA viruses”

- Development of the ISA method (Infectious Subgenomic Amplicons), a new reverse genetic system for the rapid production of infectious single stranded positive sense RNA viruses
- Production of re-encoded Japanese encephalitis viruses (JEV) using a combination of the ISA method and large scale random codon re-encoding
- Phenotypic and molecular characterisation of the re-encoded JEVs
- Application of the ISA method for the isolation of infectious viruses from inactivated material

Skills

Cellular and Viral Cultures	<ul style="list-style-type: none">- Culture of mammalian and insect continuous cell lines- Virus production in BSL-2 and BSL-3 laboratory- Virus quantification (TCID₅₀, PFU)- Virus competition experiments, replication kinetics- Passage of virus <i>in cellulo</i>
Molecular Biology	<ul style="list-style-type: none">- Automated extraction of nucleic acids, purification- PCR techniques (PCR, RT-PCR, qPCR, qRT-PCR)- Infectious clone design- Infectious-Subgenomic-Amplicons (ISA) method
Molecular Cloning	<ul style="list-style-type: none">- Bacterial culture and transformation- Screening of bacterial colonies- Design, production and purification of plasmids

Bioinformatics	<ul style="list-style-type: none"> - <i>In silico</i> design of viral genomes, primers, probes - Genome property studies (CodonW, Mfold, SMS) - Sequence analysis (Sequencher, CLC) - Quasi-species analysis (CLC) - Database building on Excel (Pivot Tables)
Languages	<ul style="list-style-type: none"> - French: Mother Tongue - English: fluent (speaking, reading, writing)

Publications

Utilisation of ISA Reverse Genetics and Large-Scale Random Codon Re-Encoding to Produce Attenuated Strains of Tick-Borne Encephalitis Virus within Days.

de Fabritus L, Nougairède A, [Aubry E](#), Gould EA, de Lamballerie X. 2016 August. *Plos One*.

ISA-Lation of Single-Stranded Positive-Sense RNA Viruses from Non-Infectious Clinical/Animal Samples.

[Aubry E](#), Nougairède A, de Fabritus L, Piorkowski G, Gould EA, de Lamballerie X. 2015 Sep. *PLoS One*.

Attenuation of Tick-Borne Encephalitis Virus Using Large-Scale Random Codon Re-encoding.

de Fabritus L, Nougairède A, [Aubry E](#), Gould EA, de Lamballerie X. 2015 Mar. *PLoS Pathog*.

Flavivirus reverse genetic systems, construction techniques and applications: a historical perspective.

[Aubry E](#), Nougairède A, Gould EA, de Lamballerie X. 2015 Feb. *Antiviral Res*.

Single-stranded positive-sense RNA viruses generated in days using Infectious Subgenomic Amplicons.

[Aubry E](#), Nougairède A, de Fabritus L, Querat G, Gould E, de Lamballerie X. 2014 Jul. *J Gen Virol*.

Random codon re-encoding induces stable reduction of replicative fitness of Chikungunya virus in primate and mosquito cells.

Nougairède A, De Fabritus L, [Aubry E](#), Gould EA, Holmes EC, de Lamballerie X. 2013 Feb. *PLoS Pathog*.

Patents

Method for rapid generation of an infectious RNA virus

[Aubry E](#), Nougairède A, Querat Gilles, de Lamballerie X, Gould EA, de Fabritus L

N° EP 14 305 955.8 – filing date: 20 06 2014

Method for rapid generation of an attenuated RNA virus

Nougairède A, de Fabritus L, [Aubry E](#), de Lamballerie X, Gould EA

N° EP 14 305 956.6 – filing date: 20 06 2014

Communications

- ANTIGONE meeting for young researchers, *Cambridge, United Kingdom, 18-20th of September 2016* (Talk)
- PREDEMICS/ANTIGONE meeting for young researchers, *Rotterdam, Netherlands, 24-25th of November 2015* (Poster and Talk)
- PREDEMICS meeting, *Roma, Italy, 6-7th of October 2014* (Talks)

Interests

Travelling: Travelled extensively throughout Europe, Trekking in Georgia

Sport: Badminton/Squash, Basketball, running, vtt

Dog obedience training

References

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