

# Sarah TEMMAM

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## Post-doctoral researcher in virology

### Summary

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I am interested in the study of different models of viral emergence at the animal/human interface that could impact global health. I completed a MSC in Biotechnologies and worked for several years in the field of emerging viruses before starting a PhD in Infectious Diseases. I completed my education with a post-doctoral fellowship that aimed at identifying, among the metavirome of reservoirs and vectors, which viruses are silently crossing the species barrier to infect exposed human populations; to finally better understand the mechanisms of viral emergence and explain why some viruses are able to cross the species barrier and other not, which routes of transmission are more favorable, which characteristics could explain the switch from localized spillover hosts to a pandemic diffusion of the virus and why many others are simply dead-end infections.

### Keywords

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Emerging viruses, One health, spillover, viral metagenomics.

### Positions

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- 2016 – present **Post-doctoral researcher**, Pathogen Discovery Laboratory, Institut Pasteur (Paris, France)
- 2013 – 2016 **PhD student & research engineer**, Unité de Recherche sur les Maladies Infectieuses Tropicales Emergentes – Aix-Marseille University (Marseille, France)
- 2009 – 2012 **Research engineer**, Centre de Recherche et de Veille sur les maladies émergentes dans l'Océan Indien (Reunion island)
- 2007 – 2009 **Research engineer**, French Agency for Food, Environmental and Occupational Health & Safety (Maisons-Alfort, France)
- 2005 – 2007 **Research engineer**, Emerging Viral Diseases unit, IRD (Marseille, France)

### Experiences

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- **Pathogen Discovery Laboratory**: identification of potential zoonotic viruses among metaviromes of mammalian reservoirs and arthropod vectors by high throughput sequencing and serological techniques.
- **“Unité de Recherche sur les Maladies Infectieuses Tropicales Emergentes”**: Characterization of viral communities of vectors and animal reservoirs of zoonoses in Senegal by metagenomics.
- **“Centre de Recherche et de Veille sur les maladies émergentes dans l'Océan Indien”**: Inventory of viral infectious agents present in wildlife and their associated ectoparasites from islands of the South-West Indian Ocean. Characterization of pandemic *Influenza A/H1N1* and other respiratory viruses in human and swine.
- **French Agency for Food, Environmental and Occupational Health & Safety**: Development and validation of techniques to detect viruses from foodstuffs. Development of virucide treatments applicable for food industry.
- **Emerging Viral Diseases unit**: Development and validation of diagnostic tools for viruses. Viral isolation and identification of emerging viruses in arthropods.

### Education

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- 2013 – 2016 **PhD in Infectious Diseases** Aix-Marseille University (Marseille, France)
- 2014 (1 week) Thematic school **VIR2OMIQUES** (CNRS, Clermont-Ferrand, France)
- 2013 – 2014 Graduate certificate in **Medical Entomology**, Aix-Marseille University (Marseille, France)
- 2002 – 2005 **Engineer in Biotechnologies** Compiègne University of Technology (Compiègne, France)

## Scientific production

### Selected publications (37, including 16 in 1<sup>st</sup> author)

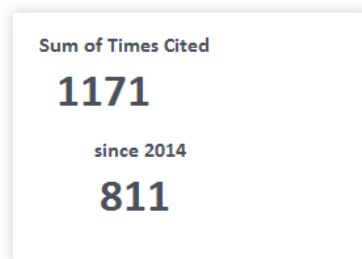
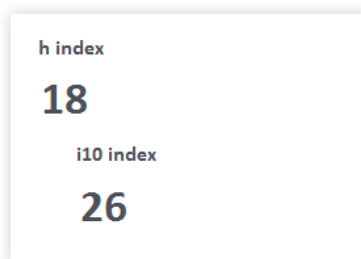
- [TEMMAM S](#), Chrétien D, Bigot T, Dufour E, Petres S, Desquesnes M, Devillers E, Dumarest M, Yousfi L, Jittapalapong S, Karnchanabanthoeng A, Chaisiri K, Gagnieur L, Cosson JF, Vayssier-Taussat M, Morand S, Moutailler S, Eloit M. Monitoring silent spillovers before emergence: a pilot study at the tick/human interface in Thailand. → Accepted (Front. Microbiol.)
- [TEMMAM S](#), Bigot T, Chrétien D, Gondard M, Pérot P, Pommelet V, Dufour E, Petres S, Devillers E, Hoem T, Pinarello V, Hul V, Vongphayloth K, Hertz JC, Loiseau I, Dumarest M, Duong V, Vayssier-Taussat M, Grandadam M, Albina E, Dussart P, Moutailler S, Cappelle J, Brey PT, Eloit M. Insights into Jingmenviruses host range, genetic diversity and geographical distribution. → Accepted (mSphere)
- [TEMMAM S](#), Monteil-Bouchard S, Robert C, Baudoin JP, Labas N, Raoult N, Mediannikov O, Desnues C. Viral communities of biting midges revealed novel emerging arboviruses, including novel Thogotovirus species and Rhabdovirus genus. *Viruses* 2016 8(3). pii: E77. doi: 10.3390/v8030077.
- [TEMMAM S](#), Davoust B, Chaber AL, Lignereux Y, Michelle C, Monteil-Bouchard S, Raoult D, Desnues C. Screening for viral pathogens in African simian bushmeat seized at a French airport. *Transbound Emerg Dis.* 2016 doi: 10.1111/tbed.12481.
- [TEMMAM S](#), Monteil-Bouchard S, Sambou M, Azza S, Decloquement P, Boukhalil J, Baudoin JP, Pardot P, Robert C, La Scola B, Mediannikov O, Raoult D, Desnues C. Faustovirus-like asfarvirus in hematophagous biting midges and their hosts. *Front Microbiol.* 2015; 6:1406.
- [TEMMAM S](#), Monteil-Bouchard S, Robert C, Pascalis H, Michelle C, Jardot P, Charrel R, Raoult D, Desnues C. Host-associated metagenomics: a guide to generating infectious RNA viromes. *PLoS One.* 2015; 10(10):e0139810.
- [TEMMAM S](#), Davoust B, Berenger JM, Raoult D, Desnues C. Viral metagenomics on animals as a tool for the detection of zoonoses prior to human infection?. *Int J Mol Sci.* 2014; 15(6):10377-97.
- [TEMMAM S](#), Besnard L, Héraud JM, Andriamanivo HR, Foray C, Andriamandimby SF, Rafisandrantantsoa JT, Cardinale E, Dellagi K, Pavio N, Pascalis H, Porphyre V. High prevalence of Hepatitis E in humans and pigs and evidence of genotype-3 virus in swine, Madagascar. *Am J Trop Med Hyg.* 2013 Feb;88(2):329-38.

### Main oral presentations

- [TEMMAM S](#), Bigot T, Petres S, Desquesnes M, Chrétien D, Devillers E, Yousfi L, Cosson JF, Vayssier-Taussat M, Morand S, Moutailler S, Eloit M. Identification de virus à potentiel zoonotiques : application à la caractérisation de l'interface tique/homme en Thaïlande. *Journées Francophones de Virologie, Lyon mars 2019.*
- [TEMMAM S](#), Mediannikov O, Robert C, Sambou M, Aubadie M, Diatta G, Berenger JM, Monteil-Bouchard S, Raoult D, Desnues C. Les communautés virales des arthropodes hématophages: description, interactions, écologie et risques pour la santé humaine. *Journées Francophones de Virologie, Paris mars 2014.*
- [TEMMAM S](#), Lagadec E, Dietrich M, Bastien M, Le Corre M, Pascalis H. A new tick-borne flavivirus isolated in *Ornithodoros capensis* ticks associated with seabirds in Juan de Nova and Tromelin Islands. *Congrès RUN-Emerge, Saint-Denis de La Réunion, novembre 2012.*

### Main poster presentations

- [TEMMAM S](#), Bigot T, Pérot P, Gondard M, Gorman C, Chrétien D, Devillers E, Hoem T, Pinarello V, Hul V, Vongphayloth K, Petres S, Duong V, Grandadam M, Albina E, Vayssier-Taussat M, Dussart P, Moutailler S, Cappelle J, Brey P, Eloit M. De nouveaux *Flaviviridae* segmentés avec une répartition mondiale infectent un large spectre d'hôtes vertébrés et arthropodes. *Poster, Journées Francophones de Virologie, Lyon mars 2019.*
- [TEMMAM S](#), Prestat E, Mediannikov O, Berenger JM, Monteil-Bouchard S, Raoult D, Desnues C. Les communautés virales des arthropodes hématophages : description, interactions, écologie et risques pour la santé humaine. *Congrès de la Société de Pathologie Exotique, Dakar novembre 2013.*



## **Additional qualifications**

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Funding	Participation to the writing of proposals for regional, national and international calls (CRVOI: TAAF 2010, PHRC 2011, ANR 2012; Institut Pasteur: Inception 2018, PTR 2019, NIH 2019).
Supervision	Technicians, assistant researchers, MSC students internships.
Lab skills	Virology, cellular and molecular biology, OMICS sciences (NGS). Habilitation for BSL-3 manipulations for 14 years. BSL-3 lab manager (CRVOI, Reunion island).
Computer skills	Bioinformatics for sequences and metagenomics analyses, phylogenetic analyses.

## **Contacts former labs**

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- Pr. Marc ELOIT, leader of the Pathogen Discovery Laboratory, Institut Pasteur. Tel : 33 (0) 1 44 38 92 16 ; mail : marc.eloit@pasteur.fr
- Dr. Christelle DESNUES, leader of the Pathovirome team, Unité de recherche sur les Maladies Infectieuses et Tropicales Emergentes (URMITE). Tel : 33 (0) 4 91 32 46 30 ; mail : christelle.desnues@univ-amu.fr
- Pr. Koussay DELLAGI, former director at Centre de Recherche et de Veille sur les maladies émergentes dans l'Océan Indien (CRVOI), now in Institut Pasteur. Tel : 33 (0) 1 45 68 85 31 ; mail : koussay.dellagi@pasteur.fr
- Pr. Xavier de LAMBALLERIE, head of the Unité des Virus Emergents – Emergence des Pathologies Virales (UVE – EPV IRD190). Tel : 33 (0) 4 91 32 44 20 ; mail : xavier.de-lamballerie@univ-amu.fr