

## Postdoc in vaccinology/immunology at IDMIT / CEA

(full time, available immediately)

### Our structure

The French Alternative Energies and Atomic Energy Commission (CEA) is a key player in research, development and innovation in fundamental research in life science. Located close to Paris, in Fontenay-aux-Roses, the IDMIT department of CEA (Infectious Disease Models and Innovative Therapies), a joint research structure with Université Paris-Saclay and Inserm, is developing preclinical and clinical research in human infectious diseases and immunology. IDMIT is particularly involved in the development of models, including non-human primate (NHP) models, for COVID-19.

### The project

The selected candidate will carry out research activities in IDMIT to understand mechanisms of vaccine induced immunity against SARS-CoV-2. In addition to protective response, he will explore potential risk of vaccine-induced enhancement of infection in certain circumstances. This project is being carried out in collaboration with the Bill&Melinda Gates Foundation; the candidate will work in Roger Le Grand's team with the help of a project manager and IDMIT core facilities.

The project will consist of in-depth analyses of antibody responses, cellular responses and tissue damages in macaques immunized against SARS-CoV-2 then exposed to the virus. Appropriate immunological readouts will be used, including flow or mass cytometry on blood, lung cells and bone marrow, and various tests of immune function (AIM assays, ADCC/ADCP assays, ELISpot), as well as analyses of the virus (qPCR, IF, IHC). There will be opportunities for further developments using available technologies at IDMIT, including Mass cytometry and *in vivo* and *in vitro* imaging.

### Education and experience required

- PhD in immunology or a closely related field (vaccinology, virology, onco-immunology)
- Experience in flow cytometry, culture of immune cells, and knowledge in molecular biology and/or immune monitoring.
- Fluent in English. French notions would be a plus.
- Good laboratory, analysis and communication skills.

Lab website, including all publications: <http://www.idmitcenter.fr/fr/>

Application: by March 1st, 2021, to [roger.le-grand@cea.fr](mailto:roger.le-grand@cea.fr)

Duration of the postdoc: 2 years

If you have questions: please contact us via email: [anne-sophie.gallouet@cea.fr](mailto:anne-sophie.gallouet@cea.fr) / [pauline.maisonasse@cea.fr](mailto:pauline.maisonasse@cea.fr) / [roger.le-grand@cea.fr](mailto:roger.le-grand@cea.fr)



### Selected references:

- 1) **Maisonasse P\***, Guedj J\*, **Contreras V\***, Behillil S\*, Solas C\*, **Marlin R\***, **Naninck T**, Pizzorno A, **Lemaître J**, Gonçalves A, **Kahlaoui N**, Terrier O, **Fang RHT**, Enouf V, **Dereuddre-Bosquet N**, Brisebarre A, Touret F, **Chapon C**, Hoen B, Lina B, Calatrava MR, van der Werf S, de Lamballerie X, **Le Grand R**. Hydroxychloroquine use against SARS-CoV-2 infection in non-human primates. *Nature*. 2020 Sep;585(7826):584-587. doi: 10.1038/s41586-020-2558-4. Epub 2020 Jul 22. PMID: 32698191.
- 2) Muñoz-Fontela C, Dowling WE, Funnell SGP, Gsell PS, Riveros-Balta AX, Albrecht RA, Andersen H, Baric RS, Carroll MW, Cavaleri M, Qin C, Crozier I, Dallmeier K, de Waal L, de Wit E, Delang L, Dohm E, Duprex WP, Falzarano D, Finch CL, Frieman MB, Graham BS, Gralinski LE, Guilfoyle K, Haagmans BL, Hamilton GA, Hartman AL, Herfst S, Kaptein SJF, Klimstra WB, Knezevic I, Krause PR, Kuhn JH, **Le Grand R**, Lewis MG, Liu WC, **Maisonasse P**, et al.. Animal models for COVID-19. *Nature*. 2020 Oct;586(7830):509-515. doi: 10.1038/s41586-020-2787-6. Epub 2020 Sep 23. PMID: 32967005.
- 3) Funnell SGP, Dowling WE, Muñoz-Fontela C, Gsell PS, Ingber DE, Hamilton GA, Delang L, Rocha-Pereira J, Kaptein S, Dallmeier KH, Neyts J, Rosenke K, de Wit E, Feldmann H, **Maisonasse P**, **Le Grand R**, et al.. Emerging preclinical evidence does not support broad use of hydroxychloroquine in COVID-19 patients. *Nat Commun*. 2020 Aug 26;11(1):4253. doi: 10.1038/s41467-020-17907-w. PMID: 32848158; PMCID: PMC7450055.
- 4) Philip J. M. Brouwer\*, Mitch Brinkkemper\*, **Pauline Maisonasse\***, **Nathalie Dereuddre-Bosquet**, Marloes Grobden, Mathieu Claireaux, Marlon de Gast, **Romain Marlin**, et al.. Two-component spike nanoparticle vaccine protects macaques from SARS-CoV-2 infection. *Cell* (Accepted 2020 Dec 24). bioRxiv 2020.11.07.365726; doi: <https://doi.org/10.1101/2020.11.07.365726>
- 5) Palgen JL, Tchitchek N, Rodriguez-Pozo A, Jouhault Q, Abdelhouahab H, Dereuddre-Bosquet N, Contreras V, Martinon F, Cosma A, Lévy Y, Le Grand R, Beignon AS. Innate and secondary humoral responses are improved by increasing the time between MVA vaccine immunizations. *NPJ Vaccines*. 2020 Mar 19;5:24. doi: 10.1038/s41541-020-0175-8. eCollection 2020. PMID: 32218996, PMCID: PMC7081268