Analysis of IgG responses to the *Aedes albopictus* 34k2 salivary protein in individuals from Dengue and Chikungunya endemic areas

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INTRODUCTION

Aedes mosquitoes

➡ **Vectors** of **arboviruses** of large relevance for **public health**

- **Dengue**
- **Chikungunya**
- **Yellow fever**
- **Zika**

Classical methods to evaluate human-vector contact

Currently classical entomological tools are the main method to evaluate human exposure to *Aedes* mosquitoes.

Hard working, expensive and indirect measures

Novel serological tool to evaluate human-vector contact

Human antibody response to mosquito salivary antigens is emerging as a relevant additional tool

- **Direct measure of human-vector contact**
- **Assessment of vector control intervention**

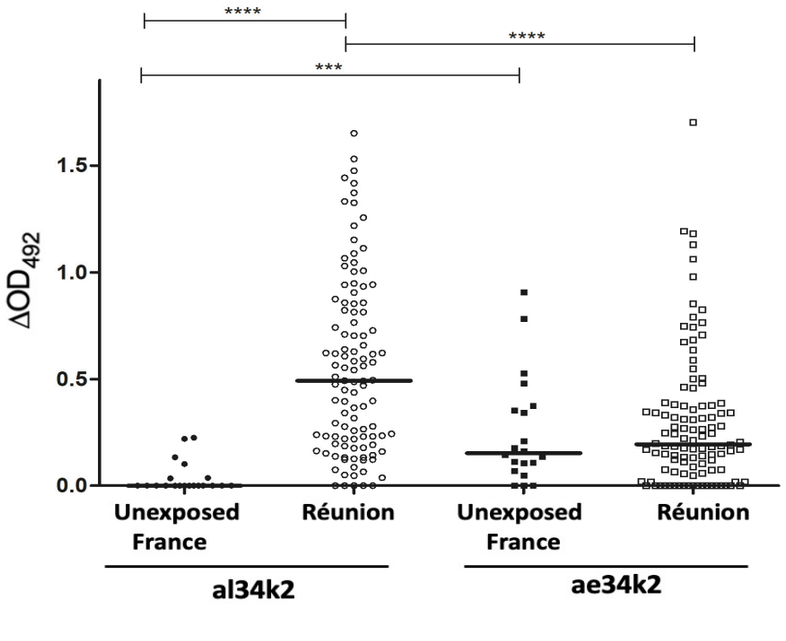
MATERIAL AND METHODS

Location	Time	Sample
Reunion Island (exposed only to *Ae. albopictus*)	2009	(n=108)
Bolivia (exposed only to *Ae. aegypti*)	2007	(n=115)
North of France (exposed neither to *Ae. albopictus* or *Ae. aegypti*	2009	(n=18)

- **Sera** (provided by Dr. F. Remoue and Dr. A. Poinsignon. IRD, Montpellier)
- Antigens**: 34k2 salivary proteins from *Ae. albopictus* (al34k2) and *Ae. aegypti* (ae34k2)**
- **ELISA**

RESULTS

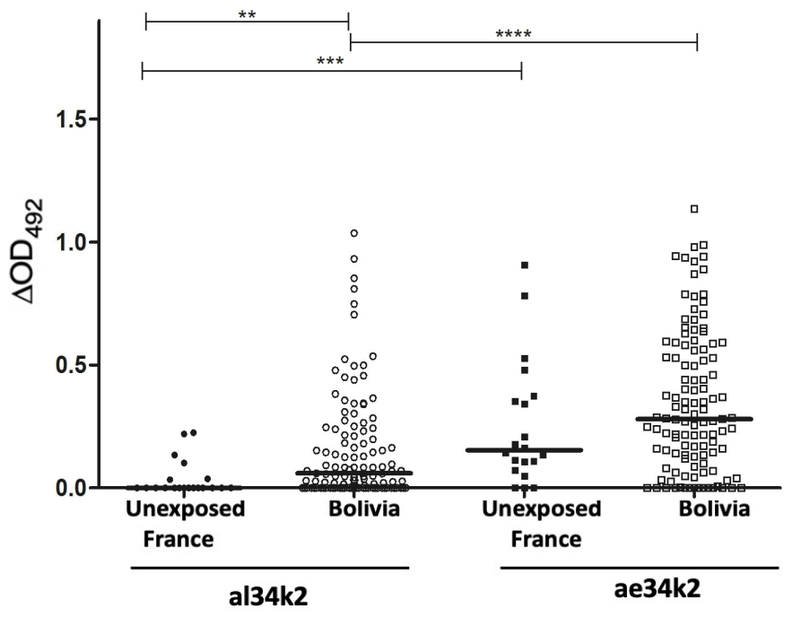
1. Réunion: anti-al34k2 and –ae34k2 IgG responses



✓ **al34k2 suitable** as marker of exposure to *Ae. albopictus* in areas where CHIKV and Dengue transmission are endemic

✓ **ae34k2 unsuitable** as marker of exposure to *Ae. albopictus* (unspecific = high background

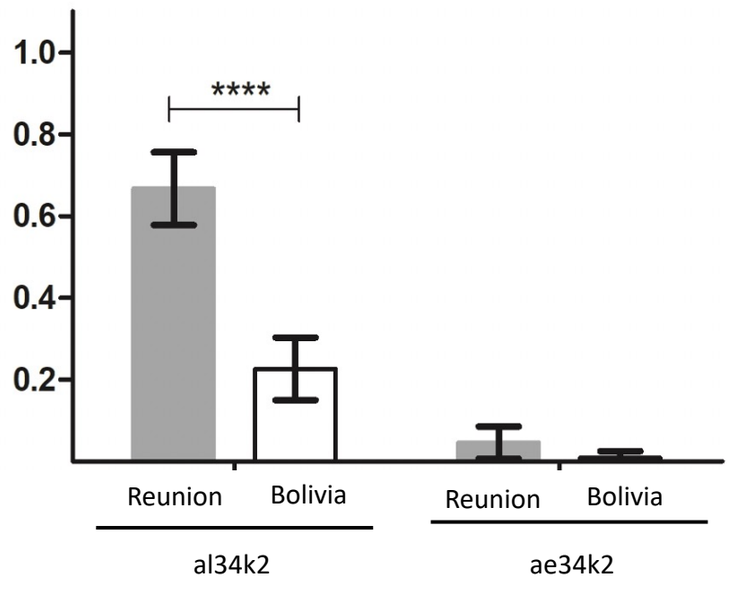
2. Bolivia: anti-ae34k2 and –al34k2 IgG responses



✓ **ae34k2 unsuitable** even as marker of exposure to Ae. aegypti (unspecific = high background)

✓ IgG responses to **al34k2 capture in part exposure to *Ae. aegypti***

3. Seroprevalence



al34k2 seroprevalence:

✓ **Réunion: 0.66**

✓ **Bolivia: 0.22**

DISCUSSION

- **al34k2 may represent a suitable marker of human exposure to *Ae. albopictus* in Dengue and CHIKV endemic areas**
- **al34k2 may capture at least in part exposure to *Ae. aegypti* (possibly useful in areas whit both vectors)**
- **ae34k2 appear unsuitable as marker of human exposure to *Ae. aegypti* due to non-specific IgG response**

This study confirms the suitability of the al34k2 antigen as a marker of human exposure to Ae. albopictus also in areas with endemic arboviral transmission (dengue, chikungunya, etc.). Such complementary tool, can be useful for epidemiological studies, evaluation of vector control interventions and possibly for the evaluation of transmission risk

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