Candidature bourse ciblée pour un meeting

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CV au format PDF

https://cfatg.org/wp-content/uploads/2023/09/CV_2023-09-25_Julie_LUCAS.pdf

Résumé des travaux présentés lors du meeting

Antigen presentation by B cells is central in the humoral immune response. B cells present antigens to helper T cells which stimulate their differentiation into plasma cells or memory cells. Autophagy-related (ATG) proteins participate in antigen presentation, but their precise contribution is still unclear. We previously demonstrated a preponderant role for ATG5, being involved in immobilized antigen processing after engagement by the B cell receptor (BCR) through polarized endocytosis. We aim now at precising how ATG proteins participate in BCR trafficking and antigen processing.

We firstly intended to define if LC3-conjugation to single membranes is involved in BCR trafficking. We therefore studied the impact of RUBCN depletion, protein essential for LC3 associated phagocytosis/endocytosis. We stimulated primary B cells isolated from a Rubcn-/- mice, with microbeads-tethered antigens. Upon RUBCN depletion, super-resolution imaging show polarization defects of internalized BCR-containing vesicles. This suggests the involvement of RUBCN-dependent processes in BCR endocytosis. We are now investigating whether RUBCN participates in antigen presentation.

We are also addressing the question of the in vivo role of ATG5 in the processing of BCR captured antigen. We generated ATG5-deficient transgenic mouse models, expressing a BCR specific for a model antigen. After immunization we are investigating by flow cytometry the impact of ATG5 deletion on class switching, and affinity maturation. We are also following B cell capacity to acquire tagged antigen. We will thus be able to evaluate the role of ATG5 in the acquisition of the antigen and investigate whether a selective advantage is provided to B cells by the expression of ATG5, in the long term of the humoral response.

Altogether, we showed that ATG proteins are potentially involved in RUBCN-dependent pathways in BCR endocytosis. We are now validating the in vivo role of this pathway in antigen-driven B cell differentiation.

Lettre de motivation

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For whom it may concern

Club Français de l’Autophagie members and « 11th Scientific Days on Autophagy » seminar organizers

Strasbourg, September 25th, 2023

Object: Application for doctoral fellowship grant to attend the “11th Scientific Days on Autophagy” 2023

Madam, Sir,
I have the honour to submit to you my grant request to attend CFATG11 and present my work at these “11th Scientific Days on Autophagy”.
I am 3rd year PhD student, working on the role of autophagy-related proteins in the trafficking of the B cell antigen receptor under the supervision of Frederic GROS in Strasbourg (Inserm URM_S 1109, Pauline SOULAS’s group).
During the congress, I would like to present a poster of my results obtained on different mouse models. This poster will complement an oral presentation by Quentin FRENGER (4th year PhD student in the same lab). We aim now at precising how ATG proteins participate in BCR trafficking and antigen processing. My work is mainly focused on the impact of these proteins on antigen presentation. I particularly focus on in vivo studies of these non canonical autophagy mechanisms in B cells using transgenic mice, modified for these proteins.
Presentation to peers and discussion with experienced researchers in the field of autophagy is an extremely important exercise as part of my studies, but also for my future professional life. The prestigious speakers in the 11th edition and all the discussions I had about my project during CFATG 10 highly motivate me to present again.
This seminar is also a good opportunity to discover new research topics, increase my knowledge about basic cell biology of autophagy, but also to converse with students from other universities.

As attached, you will find my CV. I remain at your disposal for further information.
Hoping that my application will be accepted.

Best regards,
Julie LUCAS

Présentation orale

Non

Présentation par affiche

Oui