A scientific report in .pdf or .doc format. It should contain the following information and not exceed 6-8A4 pages:

1. Purpose of the visit

The purpose of the travel grant was to attend to the 10th Carbohydrate Bioengineering Meeting (CBM10) that took place in Prague between the 21st and the 25th of April

2. Description of the work carried out during the visit

The travel grant gave me the opportunity to cover some of the expenses generated by attending to the meeting and to present the following communication:

Biosynthesis of GDP-fucose and other sugar nucleotides in the blood-stages of *Plasmodium falciparum*

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Carbohydrate structures play important roles in many biological processes, including cell-adhesion, cell-cell communication and host-pathogen interactions. Sugar nucleotides are activated forms of sugars used by the cell as donors for most glycosylation reactions. Using a liquid chromatography-tandem mass spectrometry-based method we identified and quantified the pools of UDP-glucose, UDP-galactose, UDP-*N*-acetylglucosamine, GDP-mannose and GDP-fucose in *Plasmodium falciparum* intraerythrocytic life stages. We assembled these data with the *in silico* functional reconstruction of the parasite metabolic pathways obtained from the *P. falciparum* annotated genome, exposing new active biosynthetic routes crucial for further glycosylation reactions. Fucose is a sugar present in glycoconjugates often associated with recognition and adhesion events. Thus, the GDP-fucose precursor is essential in a wide variety of organisms. *P. falciparum* presents homologues of GDP-mannose 4,6-dehydratase (GMD) and GDP-L-fucose synthase (FS) enzymes that are active *in vitro*, indicating that most GDP-fucose is formed by a ‘*de novo*’ pathway that involves the bioconversion of GDP-mannose. Homologues for enzymes involved in a fucose salvage pathway are apparently absent in the *P. falciparum* genome. This is in agreement with *in vivo* metabolic labelling experiments showing that fucose is not significantly incorporated by the parasite. Fluorescence microscopy of epitope-tagged versions of *Pf*GMD and *Pf*FS show that these enzymes are localized in the cytoplasm of *P. falciparum* during the intraerythrocytic developmental cycle. Although the function of fucose in the parasite is not known, the presence of GDP-fucose suggests that the metabolite may be used for further fucosylation reactions.

This work, which was recently accepted for publication in The Journal of Biological Chemistry (actually the day after coming back from the meeting; Sanz et al., Biosynthesis of GDP-fucose and other sugar nucleotides in the blood-stages of *Plasmodium falciparum*, JBC 2013), has been carried out in my lab during the last two years. It is the first publication of a research line I am trying to establish in the Barcelona Centre for International Health Research (CRESIB) as an independent investigator based on the glycobiology of protozoan parasites.

3. Description of the main results obtained;

Attending to the meeting gave me the opportunity to: i) disseminate my data and share it with other people interested in the field; ii) attend to the outstanding oral and poster communications presented in the congress; iii) the possibility of knowing researchers working my field or related fields, giving me the chance to establish collaborations in the future; iv) gain access to very important networking opportunities that would have been impossible without attending to the meeting

4. Future collaboration with host institution (if applicable);

If my resources allow, in the future I will try to keep attending to CBM (or similar meetings, related to glycobiology and carbohydrates).

5. Projected publications / articles resulting or to result from the grant (ESF must be acknowledged in publications resulting from the grantee’s work in relation with the grant);

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6. Other comments (if any).