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Minutes of

The 9th MIRAGE Meeting

15 August, 2018

Boston University, Boston, MA, USA

21 September, 2018

Dr. Carsten Kettner

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These minutes provide you with the results from the previous 9th MIRAGE meeting which took place at Boston University on Wednesday, 15 August, from 9 am to 5 pm.

Additional information on MIRAGE is available at: https://www.beilstein-mirage.org

The Agenda

9.00	Welcome and Opening
	Status of guideline developments and advertising tasks • status of separation guideline publication, i.e LC Guidelines • status CE Guidelines • potential other needed/desired guidelines • journals and institutions that are recommending the MIRAGE guidelines • any papers already around that have reported results in compliance with guidelines?
9.30	Status of MIRAGE • Lessons learned from the past • Tasks for the future Aim: clear advocacy on the future function of the project/commission
13.30	Making use of the MIRAGE Guidelines • Data exchange formats (René, Will) • Software tools (Ten, Frédérique, Kiyoko) • Templates for Guidelines (Ten, …)
	Advancing the MIRAGE Guidelines in the community • Adoption by journals • Application (examples) by science community • General progress in encouraging the community to use the Guidelines • … Aim: binding commitment of actions at least with regards to the journals
17.00	Summary and Close

List of Participants

1. Kiyoko Aoki-Kinoshita
2. Matthew Campbell
3. Cathy Costello
4. Nathan Edwards
5. Ten Feizi
6. Carsten Kettner
7. Frédérique Lisacek
8. Raja Mazumder
   (took the photo)
9. Nicki Packer
10. Jim Paulson
11. René Ranzinger
12. Pauline Rudd
13. Douglas Sheeley
14. Will York
15. Joe Zaia

Status and Progress

The description of both the status of subprojects and MIRAGE itself and progresses follows a logical order that reflects the cognitive processes gained by the attendees during the meeting rather than the agenda displayed above.

Reasons for limited progress

During the past about 18 to 20 months, obviously MIRAGE did not much progress with regards to the tasks agreed on previous meetings. The following aspects describe a number of reasons but should not be read as excuses:

1. Currently, glycomics itself is making slow progress, after it has advanced very fast (and furious) recently. Techniques adopted from other fields such as MS, LC etc. for the detection and analysis of glycans have reached their limits to a certain extent. However, the exploration of glycans exclusively does not result in new findings. It is now the time to study proteoglycans, lipoglycans etc. as glycans are usually attached to these larger molecules and affect both structures and functions. However, the techniques are still lacking to do these investigations sufficiently. In addition, the community is going to consolidate those glycan data already available and try to transfer them into the context with proteins and lipids.

2. The glycomics community is a small one compared with that from proteomics and genomics, and thus has not yet a significant voice in the concert of all sciences

communities. In addition, the glycomics community is still battling for acknowledgement by, in particular, the proteomics community.
Despite of the fact that ~50% of all proteins are glycosylated, the impact of glycans for both properties and functions of proteins is just beginning to be recognized by the corresponding communities but still much work needs to be done with respect to "advertising" for glycomics.

3. The members of the Commission are observing more and more that their institutions are becoming very strict with regards to the use of working time. Any "spare time" projects such as MIRAGE are perceived very suspiciously by some administrations. However, this also includes other activities such as reviewing manuscripts and grant proposals which the researchers are not paid for by their institutions. (obviously this does not count for an increasing administrative workload that prevents the scientists doing their science jobs!).

In conclusion, the consolidation of data, the development and adoption of new techniques and the increasing workload (grant proposals, publication pressure, administration, teaching, etc.) are considered the reasons for moving MIRAGE down on the individuals' to-do-list and should be taken in account.

4. A reason has been identified with respect of the organization of the MIRAGE project, in particular by the lack of specified, small tasks that can be fulfilled in a year's time from one meeting to the next one. Despite of the given organizational structure of the Commission with sub-groups and advisory board, the self-coordination of the subgroups is limited unless one person takes the responsibility to manage this group. In addition, the development of guidelines may be more specified and clear to contributing persons than the subsequent promotion into the community. Obviously, the Commission required a clear guidance on how, where and when to promote.

This issue has been tackled by the agreement on defining small and very well specified tasks, i.e. deliverables, whose progress can be measured more easily. In addition, there was the agreement to appoint one person in charge for each task. This person can seek for help within or outside the Commission and drives the task in a way that either first drafts or finalized tasks can be reported.

A very clear statement was made by the group that the members of the Commission group expressed strongly their interest in keeping MIRAGE alive, contributing to MIRAGE and in advancing glycomics through this Beilstein initiative.

Developments inspired by MIRAGE

Despite of the apparent limited progress in aspects of this project, in particular with regards to the promotion of the guidelines and their recommendation in the journals, the short presentations given by a number of members of the Commission has proven MIRAGE an important platform for advancing glycomics.

UniCarbKB, UniCarb-DR, GlyGen, GlycoPOST, GlyTouCan, CarbArrayART, just to name a few, would not have been imaginable without MIRAGE. MIRAGE has delivered the data structures (reporting guidelines) required to develop this variety of repositories, and the same persons responsible for these projects funded by third parties, are members of the MIRAGE Commission. Any development and revisions of the guidelines are immediately considered in the development of the repositories. The variety of repositories outlined above appear very confusing for those not involved.

However, each repository covers a certain field within glycomics, and by the development of tools and portals such as GlyGen, GRITStools, etc. these repositories are going to be interconnected forming a network of knowledgebases that is planned to be queried in parallel using these tools. Furthermore, the repositories themselves are interconnecting to each other by exchanging data, such as unambiguous identifiers, linking into raw data and supporting the annotation of data.

Again, without the MIRAGE platform a close coordination beyond the borders of the single projects would not be possible (see Figure).

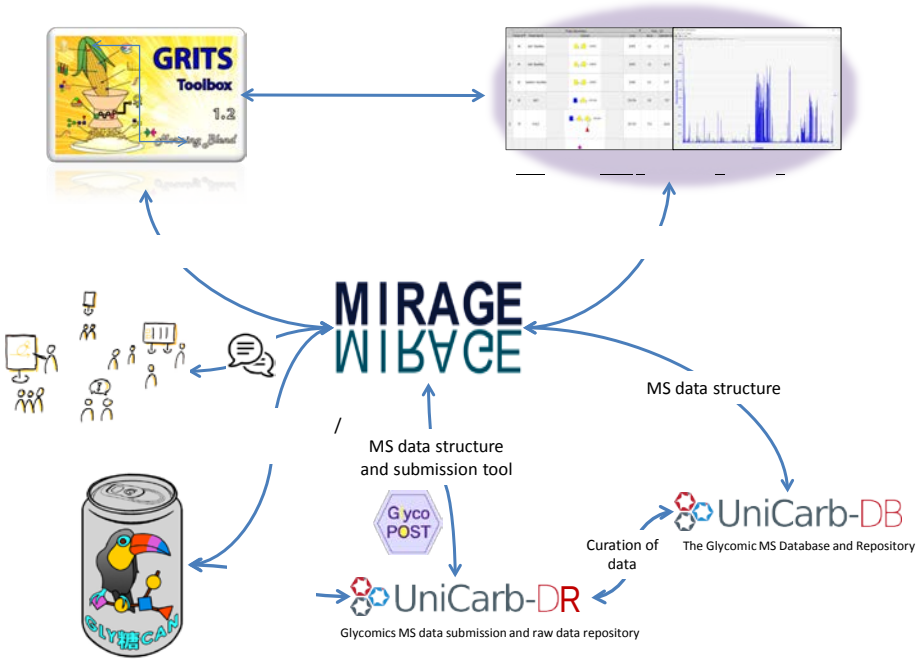

Figure: MIRAGE has been established a platform for a number of new spin-off projects.

It is important to note that this can mean a slight adoption of the aims rather than a radical change of those aims agreed at the kick-off meeting seven years ago. The development of new guidelines (where necessary), the revision of existing guidelines, and the promotion into the community is still an ongoing major aim. In particular, the latter deliverable has been recognized by the Commission a very important outcome of MIRAGE for the Beilstein-Institut.

In addition, as the journals are starting to demand for structured and reproducible data reporting, the time has come for the Commission to increase the efforts to contact the journals (see also the task list below).

Status of MIRAGE sub-projects by August 2018

Task	Status
LC Guidelines	Finalized, DOI assigned, published on MIRAGE website, manuscript 99% finalized Ontology created
CE Guidelines	Finalized but no further activities due to lack of time of ER.
NMR Guidelines	Still postponed, depending on outcomes of activities in task list
Additional guidelines	None; the group recommended to start with the development of guidelines for glycopeptides and glycan affinity reagents (→ task list)
Journal contacts	None
MIRAGE@Wikipedia	After many paragraphs recently added by FL and CK have been removed by a Wikipedia editor without any reason, they have given up.

Task list for the next 10 months until June 2019

The tasks are agreed to be well defined. The responsible persons are in charge to drive their tasks and may feel free to seek for support. The persons in charge will report the progress to CK on request.

Task	Responsibility (lead)
LC Guidelines: Manuscript finalization and submission to *Glycobiology* ASAP	M. Campbell
CE Guidelines: revision of guidelines, manuscript, at least draft CK will inform and invite E. Rapp to contribute to manuscript, additional hands are welcome (e.g. F. Leach) → DONE **Additional Note:** F. Leach is willing to give a hand on both the revision of the last version of the CE Guidelines and drafting the manuscript. ER has been informed, and he appreciated this help. JZ suggested to transfer the lead to FL.	J. Zaia
Guidelines for Glycan reagents specificity – first draft Together with T. Feizi, R. McBride, M. Jennings(?), K. Aoki-Kinoshita, R. Ranzinger	J. Paulson
Guidelines for reporting Glycanpeptide Analysis Together with D. Kolarich. Interested contributors: C. Costello, N. Edwards Either draft of new guidelines or extension of MS guidelines. Decision depends on closer analysis of the needs of the glycanpeptide guidelines and the prerequisites given by the MS guidelines.	F. Lisacek
Guidelines for reporting lectin array experiments Sort out need and potential ways of implementation, contact experts. Additional note: First experts contacted (Lara ??) and agreed to help. KAK about to ask Jun Hirabayashi at JSCR meeting.	J. Paulson
NMR Guidelines: Still postponed but need acknowledged, contact experts for the development of a strategy for generation	J. Paulson

Task	Responsibility (lead)
Promotion with journals (I): Glycobiology, PLOS, Carbohydrate Res., Glycoconjugate J. **Additional note**: the persons in charge are members of the editorial boards of these journals. They agreed to propose the MIRAGE guidelines at the next meetings.	T. Feizi, F. Lisacek, N. Packer, J. Paulson
Promotion with journals (II): In particular: array guidelines CK will provide his list of journals that include information if and which guidelines are recommended. These guidelines will be used as reason for asking to also recommend the array guidelines. → DONE Potential list of journals: PNAS, Nature, JBC, Science, Angewandte, JACS, Analytical Chemistry, Analytical and bioanalytical, Glycoconjugate, Cell, Pathogen, eLife, MCP, Molecular Omics,… Comment: what about the other guidelines, i.e. LC, MS, Sample prep?	T. Feizi, J. Paulson
Application of guidelines: Cathy's suggestion (agreed): everybody (able) from the group is asked to provide at least one paper with data reporting compliant with MIRAGE guidelines. **Additional note**: First recent papers coming in. The more papers we'll have the better and easier it is to lead by example. JZ even suggested to provide the completed table (guidelines + experimental data) in addition. CK would be happy to publish this on the MIRAGE website as well.	All (who generate experimental data)
Leading by example: List of papers on MIRAGE website that are MIRAGE compliant. Group members send CK references (including DOIs). Current status: T. Feizi (3 done), J. Zaia (some), J. Paulson (2 in prep.) More to come! **Note**: First steps already done: http://www.beilstein-institut.de/en/projects/mirage/examples	C. Kettner
MIRAGE Website: Replace 'Organization' by 'People' → DONE New category: contributors → DONE Silent members will be moved into contributors. Co-authors of guideline papers will become contributors, any additional person that works on guidelines (and is not member of MIRAGE) will be contributor → better integration of community, may be important for someone's CV	C. Kettner

Task	Responsibility (lead)
Increase accessibility to guidelines on starting page → IN PREPARATION	
MIRAGE Ontology for metadata first draft(s) for glycan arrays, MS, LC, Sample Pre. Strategy either for one-in-all or for separate ontologies	M. Campbell, F. Lisacek, R. Ranzinger, K. Aoki-Kinoshita
MIRAGE Flyer First version (no draft!) of a general MIRAGE flyer to be disseminated on conferences. It can be decided later whether separate flyers for each guidelines fit better	C. Kettner
MIRAGE @ Wikipedia Following up with the recent efforts and (re)starting work on these pages.	F. Lisacek, C. Kettner