MBI-Nytt

Nr 7 2012 – 31 september

Reins hjørne

Dear all MBIers,

I hope you all enjoyed a good summer vaccation and that you are back with lots of energy and motivation for the new semester. A special welcome to all new students who have joined our bachelor and master programs, and to those who have joined our department in new positions. Most of our autumn courses have already started and I have noticed the first experiments running in the MOL300 teaching lab. The efforts of all those involved in our teaching is most appreciated. Last week also marked the departure of Marielle for her new job in Ålesund. Marielle has served us excellently as our *studiekonsulent* for four years and her professional services and cheerful collegiality is highly appreciated. Vanja has temporarily taken Marielle's place, until a new *studiekonsulent* is employed.

As we prepared for the annual dialogue meeting with the Faculty two weeks ago, I reviewed our publication trend since 2006, and was pleased to see the steady increase in both volume and quality. This nicely mirrors what is for everyone to see when you pass our paper wall in the corridor. Yet, and as the British say: there is no room for complacency, and I know we have potential to achieve much more. Therefore, and as indicated in the *Allmøte* in January, we will now embark on a process with the aim of strengthening the department's research activities. Based on the analyses in our new Strategic Plan and the measures outlined there, we will identify scientific themes that shall form the basis for three collaborative research programmes. While these programmes will build on the strongest assets within our fields of competences, they shall also serve as driving forces for the development of our future research activities. Once established, we will direct resources and future investments into these programs and we will tailor our educational programmes to bolster the new structure. I'm convinced that the new research programmes will trigger lots of new and exciting activities and it will make it even more fun to be molecular biologists at MBI. Obviously, this process will require a lot of efforts from all of us, staff and students. I therefore call you all to **Allmøte** where the plan and process will be presented:

Friday September 14th at 11:00 in the N-terminal.

Molecule of the Month

Tris(hydroxymethyl)-aminomethan (short: "Tris")

By Marc Niere

Probably everyone at the MBI, who did experiments during the past …hours, used this compound. Life scientists often associate Tris simply with the preparation of "a buffer". It is omnipresent in our pipet tips, yet, unknown to many of us and, hence, a classic for the "What am I actually pipetting?" issue.

The relatively simple organic compound (Fig. 1.) is synthesized from highly explosive nitromethane and carcinogenic formaldehyde. Despite the hazardous precursors, Tris is a friendly and nearly harmless compound. Beware, however, that it can be irritant, so don´t use Tris-solutions as beauty cream and if you feel the desire to put your head directly into the Tris can, then at least close your eyes and stop breathing.

The molecular formula $C_4H_{11}NO_3$ suggests that a total of 6.023×10^{23} molecules add up to 121.136 g. This molar mass (granted, 121.14 g/mole…) is probably among the first ones young master students at the MBI bear in mind.

Particularly its high buffer capacity between pH 7.1 and 9.0 makes this primary amine pretty suitable in biological experiments. In other words, within this pH range you can dump quite a lot of acid or base into your Tris-solution without substantially changing its $[H_3O^+]$. Moreover, Tris is cheap, water soluble and does not affect the activity of most enzymes. Though, Tris displays some unwanted features. Tris buffers are sensitive to temperature changes (50 mM Tris pH 7.4 at 25 °C changes to pH 7.99 at 4 °C and 7.06 at 37 °C). Furthermore, dilution alters the pH of Tris solutions, which should be considered when preparing stock solutions. It is also not a good idea to expose cells to Tris, since it permeates membranes and is toxic for many mammalian cells. Moreover, the nucleophilic amino group makes Tris unsuitable in aldehyde-based fixation solutions and also prohibits Tris in diethylpyrocarbonate-treated solutions. Finally, "Tris-contaminated" protein structures were reported.

Unaware of some of these pitfalls that one may encounter when using Tris, the author must confess to have messed up at least two experiments during his professional career. That is, it is a good concept to always try to understand what exactly is in your pipet tip.

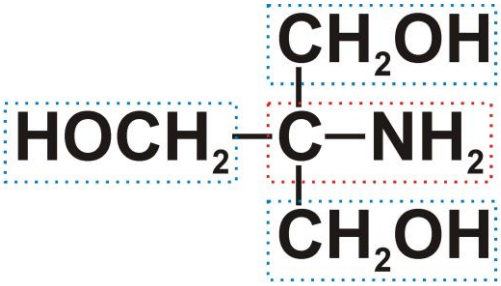

Fig. 1: Molecular architecture of Tris.
Colored boxes show the remains of 3 formaldehyde molecules (blue) and 1 molecule of nitromethan (red).

Forskning og forskningsfinansiering

Nye publikasjoner

Nuclear-to-cytoplasmic relocalization of the proliferating cell nuclear antigen (PCNA) during differentiation involves a chromosome region maintenance 1 (CRM1)-dependent export and is a prerequisite for PCNA anti-apoptotic activity in mature neutrophils. D. Bouayad, M. Pederzoli-Ribeil, J.Mocek, C.Candalh, J.-B. Arlet, O.Hermine, N.Reuter, N.Davezac, and V.Witko-Sarsat,

Journal of Biological Chemistry (2012), *doi:10.1074/jbc.M112.367839*
Measuring and comparing structural fluctuation patterns in large protein datasets. E.Fuglebakk, J.Echave, N.Reuter **Bioinformatics (2012)** *doi: 10.1093/bioinformatics/bts445*

A dynamic model of long-range conformational adaptations triggered by nucleotide binding in groel-groes. L.Skjaerven, A.Muga, N.Reuter, A.Martinez **Proteins: Structure, Function and Bioinformatics (2012)** *doi: 10.1002/prot.24113*

Comparing aminoglycoside binding sites in bacterial ribosomal RNA and aminoglycoside modifying enzymes J.Romanowska, N.Reuter and J.Trylska **Proteins: Structure, Function and Bioinformatic (2012)** *doi: 10.1002/prot.24163*

Sex differentiation in Atlantic cod (Gadus morhua L.): morphological and gene expression studies. Trine Haugen, Fernanda F.L. Almeida, Eva Andersson, Jan Bogerd, Rune Male, Katrine S Skaar, Rüdiger W Schulz, Elin Sørhus, Tim Wijgerde and Geir L Taranger (2012) **Reproductive Biology and Endocrinology 2012**, 10:47 doi:10.1186/1477-7827-10-47

The Methylococcus capsulatus (Bath) Secreted Protein, MopE*, Binds Both Reduced and Oxidized Copper. Ve T, Mathisen K, Helland R, **Karlsen** OA, Fjellbirkeland A, Røhr AK, Andersson KK, Pedersen RB, **Lillehaug** JR, **Jensen** HB. PLoS One. 2012;7(8):e43146. Epub 2012 Aug 20. PMID:22916218

N-terminal acetylome analyses and functional insights of the N-terminal acetyltransferase NatB. Van Damme P, Lasa M, Polevoda B, Gazquez C, Elosegui-Artola A, Kim DS, De Juan-Pardo E, Demeyer K, Hole K, Larrea E, Timmerman E, Prieto J, Arnesen T, Sherman F, Gevaert K, Aldabe R. Proc Natl Acad Sci U S A. 2012 109(31):12449-54.

Forskerutdanning

MCB avvikler 4-6 september kurset «How to publish in peer-reviewed scientific journals». Kurset er fulltegnet.

The deadline to sign up for the course MOL950 BIOSTRUCT: Recombinant proteins - Expression, Purification & Interaction studies is this Saturday, September 1st. There are still a couple of seats available. Knut Olav Daasvatn or Arnt Raae kan provide more information. It may be possible to sign up even after the deadline, if there still available places.

MBI Calendar

Monday Seminars

September 3rd

Fekadu Yadetie: *"Genome-wide gene expression responses in the liver of Atlantic cod exposed to the environmental pollutants methylmercury and PCB153"*

September 10th
Marianne Brattås

September 17th
Shailesh Narawane

September 26th
Hans Kristian Leren

Mondays 12.30 at N-terminalen

Friday seminar
September 21st, Patricia Beldade, Assistant Professor Evolutionary Biology Group Leiden University, The Netherlands

13.30 at N-terminalen

Trial lecture

Naouel Gharbi: *" miRNAs and RNA-binding proteins: Roles in the maternal-to-zygotic transition in development."*

Tuesday September 11th, 13.15 at N-terminalen

Allmøte

Friday September 14th at 11:00 in the N-terminal.

Studienytt

Nye masterstudenter høst 2012
Følgende nye studenter er tatt opp til masterprogrammet ved MBI høsten 2012: Kristin Gravdal, Ina Blinheim Johansen, Hanna Kaasa, Mamata Khatri, Morten Larsen, Sandra Ninzima, Yurika Rajbhandari, Kjetil L. Thorstensen

Nytt fra Heliks

Vi i Heliks arrangerer semesterets første **Finally Friday** nå på fredag (31/08), og første **Vaffeltorsdag** blir torsdag 6. september. Første vaffeltorsdag er neste torsdag, 06.09, i Loopen.

Altså foreløpige Heliksarrangement:
Finally Friday: 31. august
Vaffeltorsdag: 6. september
Vaffeltorsdag: 20. september.

For Heliks, Mari

Personalnytt

Håvard Foyn har nå avsluttet sitt 8 måneders opphold ved The Scripps Research Institute Florida, USA, og vil nå igjen bli å finne i NAT-gruppen ved MBI.

Sylvia Varland vil i løpet av høsten starte som 4-årig UiB-stipendiat i NAT-gruppen med Thomas Arnesen som veileder.

Kristian K. Starheim har nå avsluttet sitt UiB-engasjement (hos Jan Erik Varhaug, Institutt for kirurgiske fag og Johan R. Lillehaug/Thomas Arnesen, MBI), og fortsetter sin karriere i Trondheim (NTNU). Vi takker for fine år og ønsker lykke til videre!

HMS-kurs

Årets HMS-kurs for masterstudenter og nytilsatte ble avviklet 17. og 20. august. HMS-koordinator Sigrid Gjerde Bruvik var kursansvarlig, og lokalt bidro også Wenche Telle med et foredrag om laboratoriesikkerhet, og Jarle Borch som stod for omvisning og informasjon om lokalt brannvernutstyr. På timeplanen stod også 1. hjelpskurs og kurs i brannsikkerhet med eksternt innleide instruktører. Totalt 13 studenter og 6 ansatte deltok på hele eller deler av programmet.

Diverse

Henriette Aksnes, Kristine Hole, Line Myklebust og Svein Støve deltok på 2012 Jacques Monod konferansen "The translating ribosome - towards mature proteins" i Roscoff, Frankrike i juni. NAT-gruppen var totalt representert med 6 presentasjoner på møtet.

People

Jasmine Fettel, project student from Germany, is visiting lab 2 this fall, and will stay here until the end of December.

New master students in the labs
The following master students have now started working with their projects, and some of them you will see in the labs and corridors at MBI! (Workplace and main supervisor in parantheses)

Mari Katrine Berg (BIO/ Goksøyr)

Alex Kojo Datsomor (Haukeland, hormonlab./Jørn Sagen)

Christopher Florian Holte (Lab 6/Fladmark)

Sepideh Mostafavi (Lab 6/Fladmark)

Rasmus Moen Ree (Lab 4/6/Arnesen)

Helene Heitmann Sandnes (Lab 2/Halskau)

Marie Holm Solheim (Haukeland. Senter for medisinsk genetikk og molekylær medisin/Institutt for klinisk medisin/Lise Bj. Gundersen)

Helene Stuart (Hav-forskningsinstituttet/Bjørn-Einar Grøsvik)
Ingvill Tolås (Lab 3/Male)

We apologize that we have not been able to produce photos of the new students for this issue, which will therefore have to be presented in the next issue.

Kristine Hole og Henriette Aksnes deltok på Gordon Research Conference "Proprotein Processing, Trafficking & Secretion" i New London, USA i juli. De stilte med hver sin poster og Kristine Hole vant posterpris (Starheim KK, Kalvik TV, Hole K, Aksnes H, Varhaug JE and Arnesen T. "Depletion of the human N-terminal acetyltransferase hNaa30p disrupts Golgi integrity").

Henriette Aksnes ble valgt ut og deltok i juli-august på 3-ukers kurset "Yeast Genetics and Genomics" ved Cold Spring Harbor Laboratory, New York, USA.

Information from the Department management

Security in the department.

MBI has prooven to be a very safe working enviroment. We have very few accidents and we are rarely subject to theft and other undesirable instances. Hence, we can still enjoy the freedom and flexibility of having open access to our department. Yet, from time to time, there are instances and situations that put us at risk. Therefore, I call on all of you to pay careful attention to all our security and safety procedures:

- Read the newly updated Welcome brochure which contains all the essentials
- Make sure you know and understand all the lab-specific routines and rules for safety
- Make sure you are certified to operate instruments and laboratory facilities
- Everyone must attend (or have attended) the HMS course (inlcuding first aid and fire instructions).

For MBI to maintain the open access policy, it is imperative that we all contribute to preventing unauthorised access to our laboratories (i.e. all space outside the reception area). Therefore:
- When you encounter visitors to the department, greet them friendly and politely and ask who they seek, and guide them to their sought person.
- Strangers who are not legitimate visitors to the department should be guided out of our premisses.
- In encounter with strangers, do not take any risks but alert or ask the administration or senior staff.

MBI faces
To ensure that each of us get to know each other faster and better, we will place posters outside each lab with photos of everyone. These MBI faces posters will be particularly useful for our newest staff and students. Knowing each other better will also make it easier to prevent unauthorised access to our laboratories.

Therefore, you are all kindly asked to provide a good quality photo (preferably in electronic format, any size) and give to your lab responsible no later than Sep 14th. If you do not have a suitable photo, we have cameras ....

Absence from work
To be able to account for our employees whereabouts during working hours, all employees are required to report absence. This will also make MBI able to provide better services to each other and for anyone wanting to contact you. Importantly, this is also essential information for the department in case of emergency situations.

The department must know when and why you are absent. Please notify all absence such as work-related travel, vacations, sick leave, participation in conferences, seminars and meetings etc. to the administration (Phone: 55 584500, e-mali: post@mbi.uib.no).

Mat.nat. Calendar

Horizon lecture
Friday September 7th, at 11.00 Egget, Studentsenteret

Higgs boson discovery

Sergio Bertolucci, Cern

Details and more info