

Dear all MBI'ers

"Kom mai du skjønnne milde..." - "Komm, lieber Mai..." - "Come, dear May...", begins the dear old song\*, so appropriate as we are leaving April behind us. Yet, although May is usually both mild and beautiful, it is one of the most hectic periods at MBI. Professors and PIs have deadlines for the major grant applications to the Research Council and the Cancer Society. Master students are now counting weeks till deadline for their theses, and the exam season is soon upon us. First out is MOL100, which will be our first experience with digital exam. I wish you all good luck and hope that preparations will go smoothly and that results will be good!

We have also embarked on the last phase in the lab renovations, with lab3 now being overhauled. Once that is done (by 16th June according to the project plan), we can again enjoy some more space and proper places for many instruments in lab 5, - and and a final end to all the fuss, dust and noise. Thanks to all those contributing to this process.

\*German song text by Christian Adolph Overbeck (1755-1821); music by Mozart.



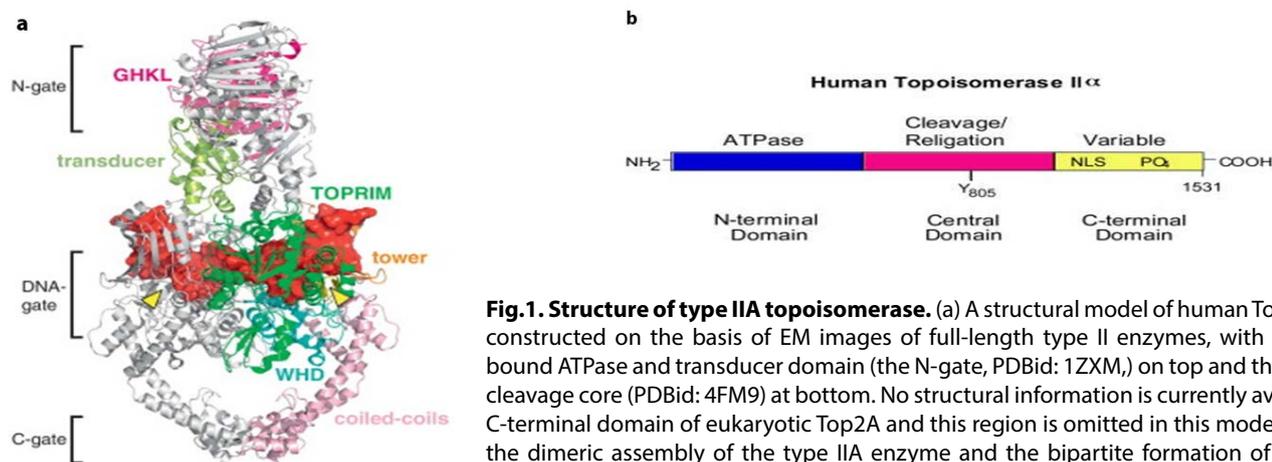
## DNA Topoisomerase II alpha: A potential effector of nuclear phosphoinositides?



By Vandana Ardawatia

Nuclear phosphoinositides (PIs) have been implicated in the regulation of gene transcription, chromatin remodelling and mRNA processing. However, the mechanistic details of nuclear PI function are unknown. As a first step towards understanding their function, we enriched for nuclear PI-interacting proteins and identified Topoisomerase II alpha (TOP2A), among others, as a potential PI-binding protein (PMID: 21048195). TOP2A is an essential, homodimeric enzyme that resolves DNA topological problems (supercoiling, knotting, tangling) encountered during replication, transcription, recombination and chromosome segregation by catalyzing the passage of an intact double helix through a transient double-stranded break generated in DNA.

Eukaryotic TOP2A (PDBid:1ZXN, PDBid: 4FM9) consists of a highly conserved N-terminal ATPase domain and a central DNA cleavage/ligation domain followed by a variable, largely disordered C-terminal domain (CTD) (Fig.1). The CTD is the least understood portion of TOP2A. However, it is thought to play a regulatory role as it harbors nuclear localization sequences and phosphorylation sites. Interestingly, the PI-interacting motifs (seven lysine-rich patches) with the consensus sequence R/K-X<sub>n</sub>=3-7-R/K-X-R/K-R/K are also located in the CTD. Deletion mutagenesis studies indicate that more than one motif is involved in PI-binding. Intriguingly, a pool of TOP2A localizes to PI-containing nuclear speckles, which are pre-mRNA processing hubs. Present efforts are directed towards determining the roles of PI-interacting motifs in TOP2A localization and function.



**Fig.1. Structure of type IIA topoisomerase.** (a) A structural model of human Top2A (hTop2A) constructed on the basis of EM images of full-length type II enzymes, with the AMPPNP-bound ATPase and transducer domain (the N-gate, PDBid: 1ZXN,) on top and the DNA-bound cleavage core (PDBid: 4FM9) at bottom. No structural information is currently available for the C-terminal domain of eukaryotic Top2A and this region is omitted in this model. To highlight the dimeric assembly of the type IIA enzyme and the bipartite formation of the N-, DNA- and C-gate, one subunit is shown in gray and the other is colored by individual domains as indicated. (b) Domain structure of hTop2A. The N-terminal domain contains the site of ATP binding and hydrolysis. The central domain contains the active site tyrosine (Y805) required for DNA cleavage and ligation. The variable C-terminal domain contains nuclear localization sequences (NLS) and sites of phosphorylation (PO4).

## Research related news

### New articles

Varland S, Osberg C, Arnesen T. N-terminal modifications of cellular proteins: the enzymes involved, their substrate specificities and biological effects. *Proteomics*. 2015 doi: [10.1002/pmic.201400619](https://doi.org/10.1002/pmic.201400619)

Van Damme P, Hole K, Gevaert K, Arnesen T. N-terminal acetylome analysis reveals the specificity of Naa50 (Nat5) and suggests a kinetic competition between N-terminal acetyltransferases and methionine aminopeptidases. *Proteomics*. 2015 doi: [10.1002/pmic.201400575](https://doi.org/10.1002/pmic.201400575)

Nikiforov A, Kulikova V, Ziegler M. The human NAD metabolome: Functions, metabolism and compartmentalization. *Crit Rev Biochem Mol Biol*. 2015 Apr 2:1-14. [Epub ahead of print]. doi:[10.3109/10409238.2015.1028612](https://doi.org/10.3109/10409238.2015.1028612)



**Henriette Didriksen**, master student, ProtMetD/NAT-gruppen (Arnesen/Myklebust)

### 4 new project stipends from Meltzer

We are very pleased that as many as four of our excellent young researchers got project stipends from the Meltzer foundation this year: **Rhian Morgan**, **Renate Hvidsten Skoge**, **Ingvill Tolås** and **Sylvia Varland** all got stipends in the range of 30-40000NOK. Well done!

**Sylvia Varland**, **Camilla Osberg** og **Marianne Goris** all got their posters accepted for the 'FEBS-EMBO advanced lecture course: Biomembranes: Molecular architecture, dynamics and function' at Corsica in June

### Utlysning SANORD såkornmidler for forskning

Universitetet i Bergen er medlem av Southern Africa – Nordic Centre (SANORD), et konsortium bestående av 42 medlemsuniversiteter i Norden og det sørlige Afrika med sekretariat og kontor lokalisert til University of the Western Cape i Sør-Afrika. SANORD tildeler støtte til utvikling av forskningssamarbeid med forskere og institusjoner i det sørlige Afrika.

Se [2015 utlysningen av SANORD Seed Funding Research](#)

Søknader sendes på e-post til [dvroberts@uwc.ac.za](mailto:dvroberts@uwc.ac.za) og [mdavis@uwc.ac.za](mailto:mdavis@uwc.ac.za)

Søknadsfrist 30. juni 2015.

### Hassel Lecture 2015: Preventing and Curing Infectious Diseases: Carbohydrate Vaccines and Continuous Flow Synthesis

20 May 14:15, Auditorium 2, Realfagbygget

This year's Hassel lecturer has a sweet tooth: Peter Seeberger, director of the Max-Planck-Institute of Colloids and Interfaces in Potsdam, is a sugar expert.

[Read more](#)



**Maxim Bril'kov**, PhD-fellow, NucReg/LIPIDSTRUCT (Halskau)



**Olivia Valencon**, ERASMUS exchange student, NucReg/Lakselussenteret (Male)

## New in the job

**Maxim Bril'kov** started as a PhD-fellow (UiB-stipend) in NucReg. 13. April. He will join the LIPIDSTRUCT group, and will be supervised by Øyvind Halskau.

**Dorothee Houry** will start as a PhD-fellow (UiB-stipend) in ProtMetD 11. May. She will join the NAD-group, and will be supervised by Mathias Ziegler



**Marina Blenski**, ERASMUS student, ProtMetD/NAT-gruppen

## Education

### Søknads- og opptakstall til studieprogrammene i molekylærbiologi

Vi hadde 59 førsteprioritetssøkere til masterprogrammet, hvorav 26 har fått tilbud eller betinget tilbud om opptak. Betinget vil si at de må fullføre graden og/eller oppnå karakterkrav i inneværende semester. Søkertallene har holdt seg noenlunde stabile fra år til år. Årets søkere skal ta MOL300 med Hee-Chan & Co sammen med de syv som begynte på programmet i januar.

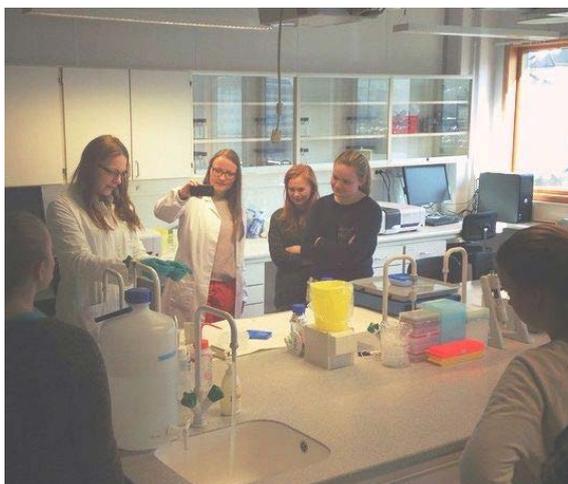
I opptaket til bachelorprogrammet hadde vi i år flere førsteprioritetssøkere enn på flere år. Siden 2011 har vi hatt mellom 52 og 60 førsteprioritetssøkere, mens vi i år endte opp med 62. I søkertallene til bachelorprogrammene på fakultetet ser vi en trend hvor geologi og petroleum går ned, mens nanovitenskap, miljø- og ressursfag, kjemi og bærekraftig havbruk går opp. Molekylærbiologi ligger omtrent på snittet for MN-fakultetet.

Søkertall er alltid spennende, men i tillegg til å jobbe aktivt for å rekruttere søkere til programmene våre, retter vi fokuset på å øke andelen som takker ja til plassen, begynner på programmet, trives og fullfører. Høsten 2014 var det flere masterstudenter som begynte enn årene før, og vi håper denne trenden fortsetter.



**Hugrún Lind Arnadottir**, project student, ProtMetD/NAT-gruppen

### Lab-course for second semester bachelor students



In April, all bachelor students on second semester was invited to a three hour lab-course. Three master students, Eline R. Mejlænder-Larsen, Lena Elise Weyer and Lars Sverkei, under supervision of Ingvill Tolås, had made a great exercise with SDS-PAGE. Not as many students as we hoped for showed up, but this will be arranged every year, and we hope it will give the students a sneak peak on further studies at MBI. Lena, Lars and Eline has done a great job making this exercise/course customized for students on their second semester.

(Photo: Eline R. M.-L.)

## Digital exam in MOL100

As a follow-up on UiB's plans to digitalise all exams by 2017, the final exam in MOL100 will this spring be digital, with an option to choose a traditional exam. We have some experience of digital assessment over the last 12 years, but this is the first time we are doing this for a final exam. So far 10 % of the ca 200 students registered for exam in MOL100 still prefer pen and paper, and have applied for exemption from computer based exam.

## This and that

### Reminder - HSE/HMS meeting and Summer trip June 10

Please remember to update your calendar to make sure you can participate on the Department's HSE/HMS - meeting (which all employees are expected to take part in). The HSE/HMS-meeting will be at the Department June 10 from about 10 am to 2 pm.

This year's SUMMER TRIP will take place just after the HSE/HMS-meeting (June 10 from about 3 pm to 11 pm) and you are all invited to participate.

You are still welcome to join the committee for the Summer trip!

**The local Emergency action plan** has been translated to English and made available at our webpage: <http://www.uib.no/en/mbi/87334/local-emergency-action-plan>

We have it from informed sources that **Rasmus Moen Ree** finished the half marathon on the respectable time of 1:51:20.9 during Bergen City Marathon! We congratulate Rasmus, and hope that the combination of tender legs and fine pipetting will not be an issue during the HSE-meeting in June.

### Winner of MBI Easter Crossword Puzzle

The staggering number of four people managed to solve the obviously extremely difficult puzzle in last issue of MBI-Nytt. The solution was "Narcissus Pseudonarcissus". A committee, consisting of Eline R. Mejlænder-Larsen and Gunhild Brubakken took care of the prize draw, and the lucky winner was Svein Inguset Støve!

