

Dear MBlers,

The new semester is not so new anymore, with all autumn courses already well in progress. We also welcome the new students in our bachelor- and master programs. We are particularly pleased to see so many new master students, both from our own bachelor program and from universities elsewhere in Norway and abroad. Not since 2008/2009 have so many students been enrolled in our master program.

This summer I participated in two interesting events: the 25th anniversary for the Human Frontier Science Program (HFSP) in Lugano and the 40th anniversary for the European Molecular Biology Laboratory (EMBL) in Heidelberg. Both events underscore that molecular biology is still a rather young discipline, with many of the early pioneers still around and active such as the crystallographer Ken Holmes (who worked with J.D. Bernal and Rosalind Franklin) and Kai Simons (who pioneered early molecular cell biology). At the same time, scientific presentations at the two events vividly showed that molecular biology is still in rapid development, in particular when merged with other disciplines, be it in the development of new technologies for super-resolution microscopy and crystallography, or single cell sequencing. Remember that we are always welcome to contact the eminent EMBL core facilities. Most impressive were the many presentations at the HFSP meeting, where molecular biologists had teamed up with physicists, mathematicians, and engineers to tackle fundamental questions in biology. It was a strong reminder that it is often well worth it seeking research partners further out than those we normally collaborate with. This is also the motivation for the new initiative just launched by the Research Council's BIOTEK2021 programme: "Digital Life: Convergence for Innovation". Here, the ambition is to bring together molecular life science and traditional biotechnology with researchers from other disciplines such as chemistry, physics, informatics, mathematics and engineering to address important questions in the marine, agricultural, medical, and industrial sectors. Hence, let's keep our eyes open for new alliances and be prepared to move out of our molecular comfort zones.



## DNA Topoisomerases: New roles in adipocyte metabolism?



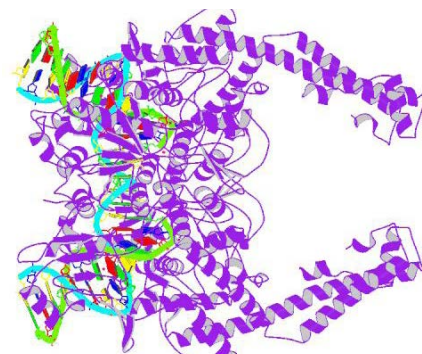
By Rhian Morgan

DNA can become tangled and over- or under-wound from processes such as DNA repair, replication, transcription and chromosome segregation. This needs to be resolved quickly otherwise these important processes would grind to a halt. Fortunately a group of enzymes called DNA Topoisomerases are there to help sort out these problems.

There are 2 type II DNA Topoisomerase isozymes in vertebrates called Topoisomerase II  $\alpha$  (Topo II $\alpha$  [Uniprot:P11388](#)) and  $\beta$  (Topo II $\beta$  [Uniprot:QO2880](#)). The way Topo II $\alpha$  and  $\beta$  untangle DNA is by firstly creating a double stranded break in one helix of DNA (called the gated helix), then passing another helix (called the transported helix) through this gap before sealing the gap back up.

Topo II $\alpha$  and Topo II $\beta$  have different expression patterns and roles in cell division and differentiation, respectively. They are encoded by two different genes but share the same overall structure and much of their amino acid sequences. They have a N-terminal ATPase domain, a central cleavage/religation domain and a C-terminal domain that is the most variable region between Topo II $\alpha$  and  $\beta$ .

Topo II $\alpha$  was previously found to bind phosphatidylinositol(4,5)bisphosphate and during my masters I created several mutants deleting K/R-rich motifs to delineate the site of phosphoinositide binding and their function. Interest in Topo II $\alpha$  was reignited during my PhD project as it was identified as a potential PI3K-regulated protein during adipogenesis. Understanding the molecular regulation of these enzymes by PI3K and how they may contribute to adipocyte differentiation has now become a new focus in my project.



DNA Topoisomerase II  $\alpha$  (purple) bound to A - Picture taken from [PDB:4FM9](#)

<http://www.rcsb.org/pdb/explore/explore.do?structureId=4FM9>

## Nytt forskningsprosjekt



**Line Myklebust** har fått støtte på 3,3 mill til 3-årig forskerstipend fra Bergen Medisinske Forskningsstiftelse.

Prosjekt: *N-terminal acetyltransferases in cancer - inhibitor development*

## New papers

**Bernt Popp, Svein I Støve, Sabine Endele, Line M Myklebust, Juliane Hoyer, Heinrich Sticht, Silvia Azzarello-Burri, Anita Rauch, Thomas Arnesen and André Reis:** De novo missense mutations in the NAA10 gene cause severe non-syndromic developmental delay in males and females. Eur J Hum Genet. 2014 Aug 6. doi: [10.1038/ejhg.2014.150](https://doi.org/10.1038/ejhg.2014.150).

**Rack JG, Lutter T, Bjerga GE, Guder C, Ehrhardt C, Värvi S, Ziegler M, Aasland R** The PHD finger of p300 influences its ability to acetylate histone and non-histone targets. R. (2014) Journal of Molecular Biology. Available online [doi: [10.1016/j.jmb.2014.08.011](https://doi.org/10.1016/j.jmb.2014.08.011).]

## Forskningsdagene 2014

Forskningsdagene 2014 går av stabelen i perioden 19-29 september med en rekke interessante aktiviteter. Av lokale bidragsyttere kan vi nevne lakselussenteret som 20 september har en stand på Festplassen under tittelen **Lakselus: En pest med flytevest!**

## The Bergen Summer Research School – call for proposals



Bergen Summer  
Research School  
> Global Development Challenges

The Bergen Summer Research School (BSRS) is a joint initiative by five institutions of higher Education and research in Bergen, addressing Global Development Challenges.

BSRS is an integrated part of the doctoral education of the University of Bergen. The core of BSRS is a series of parallel high quality courses targeting doctoral candidates and junior researchers. The courses cover a range of thematic, empirical, theoretical and methodological topics relevant to research on major global challenges.

The theme for the 2015 research school is "Sustainable Development Goals to meet Global Development Challenges."

Please find attached an [invitation to propose courses and keynote speakers](#). The deadline for proposals are **1 October**.

## MBI Events

**24. sep, 12:00:** Farewell gathering for Carol Issalene (the N-terminal)

**26. sep, 10:30:** Developmental Genetics of *Caenorhabditis elegans*, Ralf Schnabel, MBI-Sars seminar, the N-terminal

**26. sep, 13:30:** The poly(ADP-ribose) metabolizing enzymes in DNA repair: towards potential applications in anticancer strategies? Valérie Schreiber, MBI-Sars seminar, the N-terminal

## New faces



**Frida Thyri**, prosjektstudent NucReg (Lewis)



**Pascal Leonov**, prosjektstudent NucReg (Aasland)



**Sukarna Kar**, masterstudent, NucReg (Seo)

## Personalnytt



After many years as engineer at MBI, **Carol Issalene** now leaves us for a new job in GE Healthcare. We are very grateful for her dedicated and skillful operations both in the research groups and programs and in the DNA Sequencing facility. We will soon notice that Carol is not around anymore to help and instruct us in the use of several of our instruments. We wish her all the best in her new job.

*Of course we want to see Carol off in a nice way, and we therefore invite everyone to join us for a gathering **Wednesday September 24, at 12.00 in the N-terminal.***



**Sandra Kleppe**, masterstudent, Cell-Stress-gruppen (Fladmark)



**Diana Turcu** is employed for 2 months in a 50% position at the sequencing lab.



**Thomas Vikestad Kalvik** is employed as scientific assistant on hourly basis at MetaSig/the NAT-group from 15 Aug to 14 Dec.



**Helene Torkildsen**, masterstudent, CellStress-gruppen (Fladmark)

## Welcome to a new semester

We are pleased to welcome 15 new master students and 41 new bachelor students to the department! And to all older students: welcome back!

### New students in the labs

Some of our master students have now started working with their projects in the lab, and the MOL231 students has also started working on their projects. We present some of them today. We did not manage to get photos of **Parminder Kaur Bhambra** (masterstudent, MetaSig/Arnesen), **Hulda María Harðardóttir** (master student MetaSig/Ziegler and **Nils-Anders Labba** (projectstudentNucReg/Arnesen). They will be duly presented in the next issue.



**Ingvill Stensland**, masterstudent NucReg (Aasland)



**Henriette Wangen**, masterstudent NucReg (Male)



## NAT-gruppe seminar i Odda

4.-5. september var NAT-gruppen i Odda på seminar. Foruten grundig faglig påfyll gikk turen opp mot Trolltunga. Her ble ziplinene tatt på nedturen og det var mange som fikk litt vel mye luft under vingene..."



## Open dag på Bioingeniørutdanningen



HØGSKOLEN  
I BERGEN

BERGEN UNIVERSITY COLLEGE

Kjære gode samarbeidspartnarar i Bergen.

Onsdag 24. september vil det vere open dag på Bioingeniørutdanningen, Høgskolen i Bergen, kl 12.00-17.00.

Vi inviterer alle kollegaer, samarbeidspartnarar og tidlegare studentar.

Eg er takksam om de som får denne e-posten sprer denne informasjonen videre ved dykkar avdelinger.

Alle er hjartleg velkomen til å kome å helse på og sjå våre nye lokaler på Kronstad.

[Les hele invitasjonen](#)

