

Reins corner

Dear all MBlers,

Let me first congratulate this year's winners of the MBI paper award: Pål Puntervoll, Mathias Ziegler and their colleagues at CBU and in Jena. Congratulations also to Thomas Karlsson for his prize-winning contribution to the "Molecule of the Month". More on this inside this issue.

In November the Research Council published the [follow-up report](#) from the 2011 national evaluation of research in biology, medicine and helth. These evaluations are carried out on a ten-year cycle and serve to assess both quality, scope and structural aspects of the Norwegian research system. Among the key findings were: i) funds for researcher-initiated projects are too low; ii) career prospects for young research talents are poorly developed, and iii) many research groups are too small. The reports are used by both the Ministry (KD), the Research Council (RCN) and the institutions as basis for making improvements and changes in the system. Following the evaluation, a working group has discussed the findings from the evaluation and recommended a number of measures and responses.

Continued on page 2

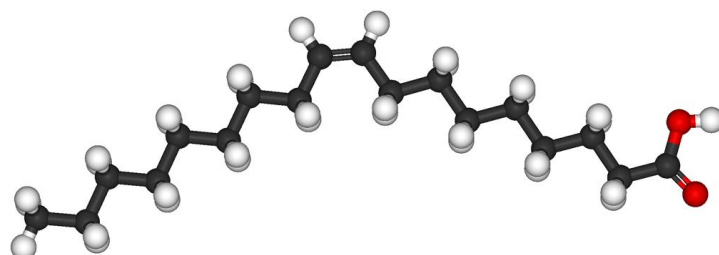
Molecule of the month: Oleic acid

By Øyvind Strømland (NUCREG)



[Oleic acid](#) is a monounsaturated fatty acid with its C to C double bond in position 9 counting from the methyl carbon at its aliphatic end (i.e. the omega-9 position). The molecule has the formula $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)\text{COOH}$, and is found in various animal and vegetable fats and oils. The majority of triglycerides in olive oil are composed of oleic acid, and it is also the most abundant fatty acid in human adipose tissue. In the world of bees and ants, oleic acid functions as a pheromone. Decaying insect corpses emit the fatty acid, and instinctively workers are then triggered to remove the corpse from the hive. If a live specimen is smeared with oleic acid it will be dragged to the graveyard as if it was already dead. More interesting to us primates, oleic

acid is also found in the tumoricidal complex [Human Alpha-lactalbumin](#) Made LEthal to Tumor cells (HAMLET), which is studied by group Halskau. Originally oleic acid was thought to be a passive cofactor but recent publications have shifted the HAMLET field to view oleic acid in its deprotonated oleate form as the active component. Alpha-Lactalbumin functions mainly as a carrier and solubilizer of the poorly soluble and inherently toxic fatty acid in this scenario. As oleic acid has aggregation and protonation-properties that are co-dependent, its properties can vary greatly in response to the environment. The apoptotic efficiency of the complex has been correlated to the number of oleic acid/oleate molecules in HAMLET and HAMLET-like complexes, and many of the features can be ascribed to free oleic acid (oleate will get protonated at physiological conditions) alone such as apoptosis, inhibition of proteasome activity, membrane binding and permabilization, cytoskeleton and alpha-actinin binding and bactericidal activity. However, these effects are only observed at a much higher oleic acid concentration compared to what is normally available in the HAMLET complex. Work is currently underway in group Halskau to further characterize the synergy between oleic acid and alpha-lactalbumin.



Structure of oleic acid

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Among the recommendations are: 1) a larger proportion of research funding should be awarded on a national competitive arena; 2) career development opportunities must be improved and that 3) research groups must become more internationally oriented. The report contains 19 specific recommendations that would contribute to improvements of the system and is an interesting read for everyone involved in research in Norway.

Will this be another report that ends up collecting dust in the drawers? One sign that the evaluation and the recommendations are taken serious has come in the revision of the National Budget for 2014, where 25 mNOK has been allocated to the RCN to strengthen the basic research components of the large thematic research programs, including BIOTEK2021. While this is a tiny contribution, I think it is an important signal from the government. The importance of basic research is, in fact, pretty strongly expressed in the "Sundvolden document" that serves as platform for the new Government.

In the mean time, the outcome of this years competition for new projects from the basic research program (FRIMEDBIO) were disasterous for us and for the University of Bergen; no new projects for us and our colleagues in Biology. Only one project was granted to a group at Department of Biomedicine. The competition is rediculously fierce, with only 6% overall success rate (18 grants in the open group and 10 grants for young researcher talents). Clearly, it takes more than excellence to be successful in this competition. We cross our fingers that we will have success in the competition for the remaining ~30 fellowships for young researcher talents in "Fellesløftet", an additional lot of resources provided by the ministry and the Universities.

While this isn't quite what we had hoped for, we roll up our sleeves and work even harder to improve our position for the next round. Obviously, we can not rely on FRIMEDBIO to fund our research. We have to become much more active on other arenas for external research funding, both within the Norwegian system and on the international arena.

With this, I wish you all a nice *juleferie* and hope that you will have a good time with family and friends.

Rein

Prøveforelesning Henriette Aksnes

Torsdag 19. desember kl. 13.15 gir Henriette Aksnes sin prøveforelesning for ph.d.-graden med tittelen: «Principles and mechanisms for regulation of translational protein modifications». Komité: Dag E. Helland, Aurelia Lewis og Christian Dölle. Sted: N-terminalen

Forskningsnytt

MBI annual paper award

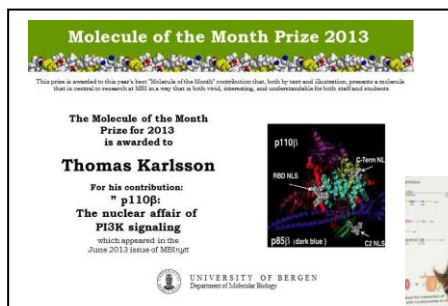


This year's paper award was awarded to Mathias Ziegler and his group for the paper Stavrum A-K, Heiland I, Schuster S, **Puntervoll P, Ziegler M**. Model of Tryptophan Metabolism, Readily Scalable Using Tissue-specific Gene Expression
 Journal of Biological Chemistry 288(48): 34555-34566, 2013.



For an interview with Mathias regarding this paper, see end of the issue.

MBI prize for the best «Molecule of the month»-contribution



Thomas Karlsson has been awarded this year's prize for best "Molecule of the Month" contribution to MBI Nytt for his contribution "p110β: The nuclear affair of PI3K-signaling". His contribution was scientifically interesting and had a format made it accessible and interesting for many groups of readers. The prize was presented at the Christmas party.



EMBO-posterpris til Thomas Kalvik



Thomas Kalvik vant EMBO-posterpris for sin poster han presenterte på 'DynaMito 2013: The 4th International Symposium on Dynamics of Mitochondria', Okinawa, Japan, Oct 28th- Nov 1st, 2013:

"The human N-terminal acetyltransferase Naa30: *in vivo* substrates and its role in maintaining the integrity and structure of Mitochondria and the Golgi apparatus"

Thomas Vikestad Kalvik, Petra van Damme, Kristian K. Starheim, Veronique Jonckheere, Geir Bjørkøy, Jan Erik Varhaug, Kris Gevaert, Thomas Arnesen



Nye forskningsprosjekter

Rasmus Moen Ree har fått 3-årig PhD-stipend fra Helse Vest. Han vil være tilsatt i Helse Vest, men vil ha arbeidsplass ved MBI og vil være tilknyttet NAT-gruppen/METASIG.

NAT-gruppen v. **Thomas Arnesen** har fått et nytt flerårig prosjekt gjennom Helse Vest. Prosjektet støttes med 600.000kr i 2014, og prosjektet kan få støtte i inntil 3 år.

Recent publications

NAD Biosynthesis In Humans - Enzymes, Metabolites And Therapeutic Aspects. **Dölle C, Skoge RH, VanLinden MR, Ziegler M.** Curr Top Med Chem. 2013 Oct 30. [Epub ahead of print]

Constitutive Nuclear Localization of an Alternatively Spliced Sirtuin-2 Isoform. **Rack, JM, VanLinden, MR, Lutter, T, Aasland, R, and Ziegler, M,** 2013, J Mol Biol, <http://dx.doi.org/10.1016/j.jmb.2013.10.027>

Studie- og studentinfo

Nytt fra Heliks

Siden sist har Heliks hatt Allmøte. Det var godt oppmøte, og mange nye fjes som var tilstede. Elisabeth Ueland har fullført sin master og vil av den grunn gå av som nestleder. Som leder i Heliks setter jeg veldig stor pris på jobben som har blitt gjort av alle i styret denne perioden, og det er tydelig at arbeidet med rekrutteringen har gitt resultater. Heliks består nå av studenter på alle trinn fra første år på bachelor til og med siste år på mastergraden. Dette er vi veldig fornøyd med!

Det nye styret består av:

Ina Blindheim Johansen (leder), Karina Dale (nestleder), Sandra H. Kleppe (kasserer), Kristina Strand (infoansvarlig), Ellen Teigen (praktisk ansvarlig), Ingvild Stensland (sosialgruppe, master), Nina McTiernan (sosialgruppe, bachelor), Helene Torkildsen (RU), Instituttrådet (master), (instituttrådet, master), Christina Tronstad (instituttrådet, bachelor), Kristin Gravdal (programstyret, master), Anniken Waage Fougner (programstyret, bachelor), Eline R Mejlænder- Larsen (RU, vara), Regine Åsen – Jersin (instituttvara), Muri Saba (programstyrevara)

Heliks har opprettet en ny sosialgruppe bestående av seks ny medlemmer: Oda Lilland, Åsta Ottesen, Odin Blomset, Ingvild Losnegard Koløen, Kjersti Aamodt Stensland og Siri Goksøyr. Denne gruppen vil jobbe med ulike sosiale arrangement som vil skje denne høsten, og frem mot Kick off arrangementet i regi av RU som finner sted 13- 16 januar. Her vil alle MATNAT- studentene få muligheten til å delta og det vil være noe for enhver; quiz, stands, konkurranser, foredrag, idrettsdag og det hele avsluttes med en storslått galla.

Takk til alle som hjelper til og bidrar til at Heliks går så bra som det går!

Heliks,
- Ina Blindheim Johansen

Prosjekt – styrking av bachelorstudentenes tilhørighet

Mari Katrine Berg er ansatt som prosjektmedarbeider i studieavdelingen. Prosjektets målsetting er å styrke bachelorstudentenes faglige og sosiale tilhørighet. Ved å kartlegge ønsker, forventninger og tanker blant studentene, kan vi utvikle og gjennomføre tiltak for å gjøre studietiden ved instituttet rikere for våre bachelorstudenter.

Posterpresentasjon MOL213



Stemningen var upåklagelig under årets posterpresentasjon. Øyvind Strømmland og Helene Torkildsen studerer Ellen Teigens poster.



Ida Lavik var den fornøyde mottakeren av årets påskjønnelse fra emneansvarlig Kari Fladmark.

Molecular Biology Day 14 March 2014



On Molecular Biology Day we invite approximately 70-100 pupils in to our labs. The whole department is involved in this event, and we hope you are looking as much forward to it, that we do. Mark the date in your calendar, and you will receive more information later. You find last year's program here: <http://www.uib.no/mbi/utdanning/skolebesok>.

Nye mastergrader

Vi gratulerer **Diana Ahu Prah**, **Elisabeth Ueland**, **Elisabeth S. B. Plünnecke** and **Hanna Kaasa** med avlagt mastergrad!

Personalnytt

Nytilsatte

Ingvill Tolås er tilsatt i 4-årig universitetsstipendiatstilling tilknyttet Metasig

Fatemeh Mazloui Gavvani er tilsatt i 4-årig universitetsstipendiatstilling tilknyttet Nucreg.

Mingyu Yang er tilsatt i 4-årig universitetsstipendiatstilling tilknyttet Kari Fladmarks gruppe (Bilde følger i neste utgave).

Rasmus Moen Ree er tilsatt som stipendiat i 3-årig stilling finansiert av Helse Vest. Han vil være tilsatt i Helse Vest, men har arbeidssted ved MBI, METASIG (NAT-gruppen, Thomas Arnesen).

Mari Katrine Berg er ansatt som prosjektmedarbeider i studieavdelingen i 80% stilling fram til midten av mars. Se mer om prosjektet under studieinfo (over).

Avslutning for Bernt og Johan

Denne høsten har det vært et stort generasjonsskifte ved MBI. Arnt Raae gikk av med pensjon i det stille i september (etter eget ønske). Bernt Th. Walther og Johan R. Lillehaug hadde begge sin siste arbeidsdag nå i desember, og begge ble behørig markert med kakelunsj på N-terminalen.



Avgått, men ikke utslått! Alt tyder på at Bernt tar med seg sitt gode humør inn i pensjonisttilværelsen.



Med autoriteten i behold. Det er altså mannen til venstre som takker av...

Nyansatte



Ingvill Tolås



Fatemeh Mazloui
Gavvani



Mari Katrine Berg



Rasmus Moen Ree

2013 MBI paper award – interview with Mathias Ziegler

MBInytt: *Congratulations with the MBI paper award for 2013, Mathias. You do all this wonderful NAD research, but how did come into tryptophan metabolism?*

Mathias: We wanted to do NAD metabolism and had gathered people with competence to do it, in Jena and here at the CBU. But then it turned out that there is not so much information about the enzymes, rates and stuff. And then we decided to take the opportunity to learn to make models and we looked for something that is better investigated and that was tryptophan metabolism.

So you just picked it as a piece of uncharted land?

Kind of; but there is one branch of tryptophan metabolism that goes into NAD-synthesis, - and the question was: what do we have to change in tryptophan metabolism to make more NAD so the cells can survive on tryptophan without having any other precursors.

How did this discussion come about?

It started with a discussion with Pål. He said: you have connections to Jena who do systems analysis and I have a PhD student (Anne-Kristin Stavrum) on the E-sysbio-project. As I said, the plan was first to model NAD metabolism, but since there was not enough information, we turned to tryptophan metabolism. And Ines Heiland (U. Tromsø) was actually in Jena at the time and worked on NAD.

I guess this was your first experience working closely with computational biologists. How was that?

Oh, it was amazing. It started out in Jena doing NAD stuff. It actually started with Tony Gossmann who was a master student from Jena and he got interested in NAD metabolism and did some basic analysis. And then we linked up with Jena and they got enthusiastic about it.

When I first heard of this I thought: "tryptophan metabolism in mammalian cells - not known? - you must be kidding!

Tryptophan metabolism is know, very well known. But its regulation is not known. So we wanted to know what happens when we change something in the system. That's why we needed a model.

But still, - considering all the important roles of tryptophan, action in the brain etc. How could it not be modelled before?

It is difficult. It is not linear. It is a branched network and some enzymes act in different branches. So you have to include competition between the different pathways.

What did the referees say?

One of the major criticisms was: there needs to be validation. You see, since we based our model on expression data for the different enzymes, we had to scale of

Julefest 2013



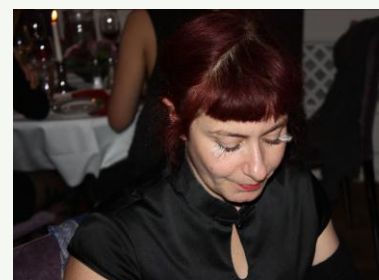
The best «Molecule of the month» awardee, Thomas.



Mathias receiving the prize for best paper 2013 on behalf of his group



Rhian and Signe deeply into the MOL007 exam



Carol - Eye-lashes of the year!

these measurements to put them into the model. The referees said: you don't really know if the mRNA levels correspond to the protein levels, - and activities. We responded that such validation would require data on mRNA levels, protein levels and all the metabolites from the same cells or tissues. And such data just doesn't exist. In the end, the referee agreed that this demand was unreasonable. Now, of course, it would be easy to add such data into the model as they appear.

There are some branches in the system that involves some drugs.

Yes, there is an inhibitor of one of the enzymes that cannot cross the blood-brain barrier. Yet you do get effects in the brain. The model explained this as the inhibitor is metabolized in the liver and one of the metabolites accumulates and goes to the brain.

How could this be followed up?

The obvious is to get more data. Then, there is some metabolism in the gut and this has not been modelled yet. Ultimately, with data on metabolites in the blood one could use the model to calculate effects in other organs and figure out if something is wrong.

Did you get any response on the paper so far?

Oh ja, Stefan Schuster got many requests from media in Germany. One magazine article in Scinexx was entitled: "Why chocolate makes you happy". The point is that chocolate is rich in tryptophan and tryptophan is a precursor for serotonin that influences the feeling of well-being.

Thanks and congratulations with the prize, Mathias !!!