NEDERLANDSE VERENIGING VOOR MATRIX BIOLOGIE

NVMB

Dutch Society For Matrix Biology

Newsletter of the Dutch Society for Matrix Biology
Nr 19 autumn 2011

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Board announcements

Autumn 2011

It is October 21st, one month into the autumn of 2011. The weather is sunny and quiet, no autumn storms in sight or even expected. However, the world seems to be in increasing turmoil. This weekend, the European leaders will have an emergency meeting about the deepening debt crisis that, after Greece, is encroaching upon Italy and already threatening France. In the Netherlands, the pension funds are warning that they may have to cut old-age pensions drastically, which means economical uncertainty for millions. In the wider world, colonel Ghaddafi has just been found and killed after the fall of his last resort, but the Arabic Spring has thus far brought more uncertainty and instability in many countries than real freedom.

We may come to learn the hard way in the coming years what historians have known and said for decades, *i.e.* that mankind in the Western world has lived an era of exceptional and yet unknown prosperity and peace since the end of World War II. We should not be too dramatic about that, as mankind has gone through somewhat rougher periods more often over the past millennia. However, it is good to realize that history has told us that the only way to turn things the right way is innovation, being inventive and thinking out of the box. Research thus. Think in the biomedical field for instance of the introduction of vaccinations based on Edward Jenner's work that halted the immense impact of cattle plague or *Rinderpest* that had caused the death of hundreds of millions of cattle in the 18th century and caused economical disaster and widespread famine all over Europe. After being eliminated from Europe more than hundred years ago, cattle plague has just recently been declared eradicated all over the globe, just as smallpox about 20 years ago.

We are all biomedical researchers and happy to do our work. The Dutch Society of Matrix Biology is trying to make a small contribution to scientific progress in the area of our expertise. We do that by facilitating the creation of networks among researchers in our field, organizing our annual congress and a one-day event in between. This time our one-day symposium (to be held in Amersfoort on November 11th, see elsewhere in the newsletter for more details) will focus on inflammation. The phenomenon of inflammation has already been described in Antiquity, but it is becoming increasingly clear how important (low-grade) inflammation is in chronic disorders. I am sure that this

is an area of investigation that will take a great flight in the near future and may yield important new developments in prevention and therapy of many disorders of great societal relevance.
Of course, the contribution of individual researchers to scientific progress is tiny in most cases, but we are all small, but essential, parts of the big machinery and from time to time it may be good to realize that as a group we are able to make a real difference, as history has proven. We need to and should develop technology, but in the end it is the societal relevance that counts and a little philosophical reflection on that may be worthwhile from time to time. The autumn is an excellent season for such philosophical pondering, preferably of course in front of an open fireplace, enjoying a good glass of wine.

René van Weeren, chairman

Change of board composition

Alwin Scharstuhl and Laura Creemers left the board after the last meeting in May. Leonie Los took over the position as treasurer from Alwin Scharstuhl and Lucas Falke and Lucienne Vonk joined the board as members.

Advantages for NVMB members

The NVMB unites researchers in the field of matrix biology from a great many Dutch universities and other research institutions. The yearly two-day NVMB meeting is an excellent opportunity for PhD students to present their work in a friendly, yet knowledgeable and critical environment. It is also a great opportunity both junior and senior researchers to establish and renew contacts. During the meeting, the NVMB awards the best oral presentation with the prestigious Pauline van Wachem award and the best participant in discussion with the van den Hooff award. The NVMB also provides a compensation for the printing costs of theses of NVMB members who presented their work at least two times at the yearly meeting.
Next to the meeting, the NVMB also organizes a one-day symposium. This year's symposium is on inflammation and NVMB members get a discount on their registration.
The NVMB, as custodian of the funds from the Foundation for the Promotion of Connective Tissue Research ("Stichting Bevordering Bindweefselonderzoek"), awards now every year the best doctoral thesis written during last year with the Bertus Kemp Prize.
Furthermore, NVMB members get 20% discount on all products from Quickzyme they order in 2011 (see the advert in this newsletter).

Inflammation symposium

On 11 november 2011 the NVMB will organise a one-day symposium on Inflammation. The symposium will be held at 'De Eenhoorn' in Amersfoort.
The meeting is organised together with dr. Magda Ulrich from VU Medical Center and the Association of Dutch Burn Centres.
Confirmed speakers and their topic:

Julia Kzhyshkowska (University Medical Centre Mannheim, Germany)
"Macrophage plasticity in inflammation"

Derek Gilroy (University College London, UK)
"Resolution of inflammation - cell types, their phenotypes and new insights"

Rob Beelen (VUMC, Amsterdam)
"M1 and M2 macrophages in disease models of fibrosis"

Martin Hoogduijn (Erasmus MC, Rotterdam)

"The immunomodulatory properties of mesenchymal stem cells and their use for immunotherapy"

Theo Geijtenbeek (AMC, Amsterdam)
"C-type lectines in inflammation"

Wim van den Berg (UMCN, Nijmegen)
"Cytokine involvement in chronic erosive arthritis"

Anja Roos (LUMC, Leiden)
"The complement system"

Magda Ulrich (VUMC)
"Inflammation and fibrosis in wound healing"

More information including the program will follow soon.
You can subscribe on our website.

PhD defences

Martin Koens:
Tubular collagen-based bioscaffolds for tissue engineering
15 September 2011. Radboud University Nijmegen Medical Centre

On the 15th of September 2011, Martin Koens successfully defended his PhD thesis entitled 'Tubular collagen-based bioscaffolds for tissue engineering'. His thesis describes the construction methodology and characterization of many different collagenous (multi)layered tubular scaffolds for the regeneration of tubular tissues/organs, i.e. the blood vessel, the urethra and hollow organs, such as the oesophagus. Preclinical evaluations of these organ-specific tubular scaffolds indicate their large potential for acellular application in tissue engineering. The research was performed at the NCMLS Department of Biochemistry of the Radboud University Nijmegen Medical Centre, in close collaboration with the Departments of Urology and Surgery.

Marijke van Vlimmeren:
The contribution of matrix and cells to leaflet retraction in heartvalve tissue engineering
3 November 2011. Eindhoven University of Technology

Heart valve tissue engineering relies on extracellular matrix production by cells seeded into a degrading scaffold material. The cells naturally exert traction forces to their surroundings and due to an imbalance between scaffold, tissue and these traction forces, stress is generated within the tissue. This stress results in compaction during culture and retraction of the leaflets at release of constraints, causing shape loss of the heart valve leaflets. Within this project, this phenomenon of tissue shrinkage is unraveled and both passive and active processes within it are quantified. It turned out that the majority of retraction occurs through passive retraction of the cells and matrix. Further, the hypothesis that a strong extracellular matrix would be able to withstand the traction forces of the cells was investigated. Therefore, the potential of hypoxia and prolonged tissue culture to provide maturation of the collagen network was investigated. Hypoxia impaired tissue formation, but prolonged tissue culture resulted in increased glycosaminoglycan content and decreased retraction, while the generated force of the cells remained constant. These results showed that the cellular surroundings affect the resulting retraction, but that improving resistance against cell traction forces by enhancing the compressive stiffness of the ECM is difficult. Although decreasing retraction remains an issue, this thesis provides new and important insights in the processes and components

of tissue retraction, which are crucial for the development of a functional non-retracting tissue engineered heart valve.

Gerwen Lammers:
Novel approaches to regenerative medicine of the skin
18 January 2012. Radboud University Nijmegen Medical Centre

On the 18th of January, Gerwen Lammers will defend his Ph.D. thesis entitled "Novel approaches to regenerative medicine of the skin". This thesis describes the results of the skin tissue engineering project that he performed at the NCMLS Department of Biochemistry, including the development of an array for the in vitro screening of 48 different collagen-based biomaterials using cultured keratinocytes, the use of gene expression microarrays as a method to evaluate biological processes that take place in regenerating wounds after treatment with a tissue-engineered construct, and the creation of a microstructured collagen membrane that mimics the natural papillary dermis.

Katja Hellingman:
Fine-tuing cartilage tissue engineering by applying principles from embryonic development
27 January 2012. Erasmus University Rotterdam

Vacancies

3 PhD students in Tissue Engineering and Regenerative Medicine at the Dept. of Biochemistry, NCMLS, Radboud University Nijmegen Medical Centre (RUNMC).

PhD student NovioTissue

The PhD student will be part of the research consortium NovioTissue funded by a regional initiative (PIDON) to exploit biomedical knowledge in an industrial setting. NovioTissue aims to develop, produce and evaluate collageneous constructs for urogenital applications, i.e. bladder, urethra and urostomy. The consortium comprises academic, medical and industrial partners, with the ultimate goal to bring products into clinical practice. Your job will include a bridging function between these partners. The PhD student will be involved in the development, analysis and evaluation of new instructive scaffolds based on collagen and effector molecules, applying methods and techniques from the field of biochemistry, biomechanics, cell biology, and animal research.

PhD student EuroSkinGraft

The PhD student will be part of the European FP7 research consortium EuroSkinGraft to develop skin-regenerative therapies (e.g. for the treatment of burns), and to test three promising collagen-based skin substitutes in the clinic (phase I and phase II trials; adults and children).
The tasks of the PhD student in this project will include comprehensive molecular evaluation of the clinical performance of the skin substitutes, i.e. biochemical, structural and molecular-biological evaluation. Emphasis will be on microarray analysis, including bioinformatics. New standards for the evaluation of skin substitutes will be set based on high density gene expression microarrays and gene ontology analysis. These data will be combined with all other data obtained in the project by other partners in order to obtain a comprehensive molecular evaluation of the clinical performance of the skin substitutes applied. The European partners in the project will at least meet yearly to discuss the progress of the project.

PhD student NIRM Musculo-skeletal diseases

The PhD student will be part of a research consortium 'Netherlands Institute for Regenerative Medicine' (NIRM) funded by the Dutch government to promote cutting-edge research in stem cell biology with advances in tissue engineering to create novel regenerative medical treatments. This specific project aims to develop bio-inspired scaffolds and tissue substitutes for regeneration of articular cartilage by developing scaffolds mimicking embryonic local micro-environments. The focus in this project is: 1) to identify/select effector molecules in cartilage development using a high

density gene expression microarray approach; 2) to use this knowledge to develop bio-inspired materials for cartilage tissue engineering; and 3) to use state of the art animal models to test new developed constructs, simulating compromised clinical conditions.

Information
www.umcn.nl.
Dr. Toin H. van Kuppevelt, a.vankuppevelt@ncmls.ru.nl, 024 3616759.
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Postgraduate course

December 6-9, 2011: postgraduate course "Molecular and cellular basis for Regenerative Medicine" in Rotterdam. For information and registration see website: http://www.regenerativemedicine.nl/pro1/general/home.asp

VENI grant

Yvonne Bastiaansen-Jenniskens got a Veni proposal accepted, entitled "Developing patient-specific in vitro models to examine foreign body reactions and test interventions" focusing on macrophages, fibroblasts and biomaterials.

Conferences

2012		
2012 Annual meeting of the ORS	San Francisco, California	February 4-7, 2012
2012 Joint meeting of The Wound Healing Society & The European Tissue Repair Society	Atlanta, Geogia	April 19-22, 2012
2012 World Congress on Osteoarthritis OARSI	Barcelona, Spain	April 25-29, 2012
ICRS 2012	Montreal, Canada	May 12-15, 2012
Annual Meeting of the International Society for Cellular Therapy	Seattle, Washington	June 5-8, 2012
2012 TERMIS World Congress	Vienna, Austria	September 5-8, 2012
2013		
2013 Annual meeting of the ORS	San Antonio, Texas	January 26-29, 2013
2013 World Congress on Osteoarthritis OARSI	Philadelphia, Pennsylvania	April 25-28, 2013
TERMIS-EU	Istanbul, Turkey	June 12-15, 2013
2014		
Federation of European Connective Tissue Societies (FECTS)	Rotterdam, The Netherlands	July 5-9, 2014

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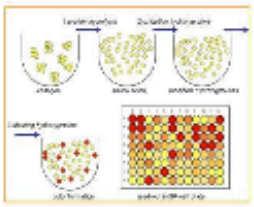

QuickZyme is known for its MMP activity assays (MMP-2, MMP-9, both for mouse and human), but has now also developed a range of assays to help you with the analysis of collagen (assays for soluble collagen, total collagen, hydroxyproline).

For members NVMB we offer 20% discount on all products. Use on the order form the code QZNVMB2011. Offer valid until 31-12-2011

For more information please visit our website (www.quickzyme.com) or mail to info@quickzyme.com

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