【13.02.07】
共同研究拠点トップダウン研究プロジェクト B2 講演会
アライアンス/多元研 G3 講　演会
有機・生命科学講演会　12-03

今回、 アライアンス・G3 での国際協同研究を進めているフランス･ボルドー第一大学 Jean-Jacques Toulmé 教授が東京での国際会議招待講演で御来日されるの を機に、タイトなスケジュールにも関わらず御来所・講演頂けることとなりました。
J.J. Toulmé 教授は、RNA アプタマーを活用した バイオメディカル分野などを ターゲットとした機能材料開発の第一人者で、現在 European Institute of Chemistry and Biology のリーダーも努めておられます。
皆様、 奮ってご参加下さい。
多数のご来聴をお待ちしております。

日　時：2 月 7 日（木）午後3時～4時30分：Time & Data：February 07, 2013 (Thursday) 3:00pm~4:30pm (Inc. Discussion)
場　所：南総合研究棟2 大会議室 (旧材料・物性総合研究棟 1 号 館 大会議室) ：Room: Meeting room on 1st floor of the South Multidisciplinary Research Laboratory 2 (http://www.tagen.tohoku.ac.jp/modules/public/index.php?content_id=33)
講　師/ The Lecturer:　Prof. Jean-Jacques Toulmé（Novaptech, European Institute of Chemistry and Biology, University of Bordeaux, ARNA Laboratory, Inserm U869, , Pessac, France）
題　目/Title of the Lecture: **Aptamers: Clever Oligonucleotides for Nanodevices**
主　催：物質・デバイス領域共同研究拠点
共　催：東北大学多元物質科学研究所
協　賛：5大学附置研究所アライアンス G3・日本化学会・高分子学会・高分子学会東北支部・日本 化学会生 体機能関連部会・　日本化学会 フロンティア生命化学研究会・高分子学会バイオミ メティックス研究会 他（予定）
問合わせ先/Contact：和田健彦/T.WADA （+81-22-217-5608 /hiko@tagen.tohoku.ac.jp）
概　要/Abstract：
Aptamers are oligonucleotides identified in large randomly synthesized libraries containing up to 1015 different oligomers, through in vitro selection, a process known as SELEX (Systematic Evolution of Ligands by EXponantial enrichment). Aptamers have been successfully raised against a wide range of targets: amino acids, nucleic acid bases, proteins, intact viruses and live cells. They generally display a high efficiency of binding. In addition they show a high specificity of recognition and can discriminate between closely related molecules. Aptamer oligonucleotides are easy to synthesize on solid support. They can be chemically modified, conjugated to different pendant groups that provide them with new functionalities or grafted on various surfaces. They can be considered as valuable alternatives to antibodies.
We raised aptamers against different proteins, such as biomarkers of human tumors or viral components indicative of infection. Following physico-chemical characterization, structural investigation, truncation and optimization these aptamers were converted into probes for imaging brain tumors or grafted onto a sensor chip (1). We also developed methodologies for improving the selection process, a tedious and slow process. The use of in house assembled automated platforms and of functional screening speeds up the identification of aptamers (2). Aptamers are of high interest for analytical purposes as well as for therapeutic application (3,4).

References

1. Da Rocha Gomes, S., Miguel, J., Azema, L., Eimer, S., Ries, C., Dausse, E., Loiseau, H., Allard, M. and Toulmé, J.J. (2012) (99m)Tc-MAG3-Aptamer for Imaging Human Tumors Associated with High Level of Matrix Metalloprotease-9. *Bioconjug Chem*, **23**, 2192-2200.
2. Dausse, E., Taouji, S., Evade, L., Di Primo, C., Chevet, E. and Toulmé, J.J. (2011) HAPIscreen, a method for high-throughput aptamer identification. *J Nanobiotechnology*, **9**, 25.
3. Dausse, E., Da Rocha Gomes, S. and Toulmé, J.J. (2009) Aptamers: a new class of oligonucleotides in the drug discovery pipeline? *Curr Opin Pharmacol*, **9**, 602-607.
4. Da Rocha Gomes, S., Az 辿 ma, L., Allard, M. and Toulmé, J. (2010) Aptamers as imaging agents. *Expert Opin Med Diagn*, **4**, 511-518.