# Pierrick CRAVEUR
# PhD in Structural Bioinformatics

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## *Education background*

**2014** **PhD degree in Structural Bioinformatics**
University Paris Diderot, Paris, France

**2009** **Master degree in Bioinformatics and Biostatistics**
University Paris-Sud XI, Orsay, France

**2007** **Bachelor degree in Biology**
University Paris-Sud XI, Orsay, France

## *Skills*

- Bioinformatics
  - Protein structure analysis : DSSP, PROMOTIF, PBXplore
  - Protein sequence analysis : BLAST, PSI-BLAST, PSSM, Clustal W
  - Molecular modeling : Modeller, I-Tasser, SCWRL
  - Molecular dynamics : Gromacs
  - Visualisation : PyMOL, VMD, Xmgrace
  - Statistics : R
- Informatics
  - Web development : HTML, PHP, Javascript, Jquery
  - Database : MySQL
  - Development : Python, Bash, Java
  - System : Linux, Windows
  - 3D animation : Autodesk Maya

## *Research topics and interests*

- Protein structure analysis :
  - Post-translational modifications in protein structures ;
  - Local structures of proteins, structural alphabet Protein Blocks ;
  - Analysis of protein structures and their flexibility ;
  - Molecular dynamic simulation ;
  - Pairwise and multiple structure alignment ;
- Protein sequence analysis :
  - Pairwise and multiple sequence alignment and amino acid conservation during evolution ;
  - Sequence/Structure/Function relationships ;
- Prediction :
  - Protein structure prediction using comparative modelling and threading methods ;
  - Protein flexibility prediction ;

## *Professional Experiences*

Oct. 2011 – Nov. 2014 **PhD**, DSIMB, Structural Bioinformatics team of INSERM UMR-S 1134, (System Dynamics and Interactions of Biological Macromolecules), University Paris Diderot, *Paris, France*

- *Thesis :* Analysis of local protein structures : β-sheets irregularities, post-translational modifications and flexibility
- Member of laboratory board
- Certificate of scientific journalism and media communication

Oct. 2011 – Nov. 2014 **Teaching (~200 hours),** University Paris Diderot, *Paris, France*

- *Master level:* sequence analysis, optimisation and machine learning in biology, alignment algorithm, clustering algorithm, molecular modelling, molecular dynamic simulation, Unix initiation.
- *Bachelor level :* Biostatistics

Sept. 2009 - Sept. 2011 **Molecular modeling engineer,** BioQuanta, *Paris, France*

- Design and set up of an *in silico* platform for ADME-Toxicity prediction,
- Conducting *in silico* ADME-Tox studies,
- Supervision of student works carried out on the prediction platform.

March - Sept. 2009 **End-of-studies internship**, BioQuanta, *Paris, France*

- Development of an algorithm for GPCRs homology modelling,
- Development of GPCRs screening algorithm based on pharmacophore docking.

## *Publications*

1. Pierrick Craveur, et *al.*
   **"Protein flexibility in the light of structural alphabets"**
   *Front. Mol. Biosci.* doi: 10.3389/fmolb.2015.00020 *[link to paper]*

2. Pierrick Craveur, Joseph Rebehmed, Alexandre G de Brevern
   **"PTM-SD: a database of structurally resolved and annotated post-translational modifications in proteins."**
   *Database* 2014, bau041
   *http://www.dsimb.inserm.fr/dsimb_tools/PTM-SD/*
   *[link to paper]*

3. Pierrick Craveur, Agnel Praveen Joseph, Joseph Rebehmed, Alexandre G de Brevern
   **"β-Bulges: extensive structural analyses of β-sheets irregularities."**
   *Protein Science* 2013, 22(10): 1366-1378. *[link to paper]*

4. Pierrick Craveur, Agnel Praveen Joseph, Pierre Poulain, Alexandre G de Brevern, Joseph Rebehmed
   **"Cis-trans isomerization of omega dihedrals in proteins."**
   *Amino Acids* 2013, 45(2): 279-289. *[link to paper]*

5. Alexandre G de Brevern, Aurélie Bornot, Pierrick Craveur, Catherine Etchebest, Jean-Christophe Gelly
   **"PredyFlexy: flexibility and local structure prediction from sequence."**
   *Nucleic Acids Res* 2012, 40(Web Server issue): W317-322.
   *http://www.dsimb.inserm.fr/dsimb_tools/predyflexy/*
   *[link to paper]*

## *Communications*

- **30th August – 4th September 2014**
  **FEBS/EMBO 2014, Paris, France**
  Poster :
  *« PTM-SD: curation of posttranslational modified residues in protein structures. »*
  Pierrick Craveur, Joseph Rebehmed and Alexandre G. De Brevern.

- **21st – 23rd May 2013**
  **GGMM2013 – « XVIIIème congrès du Groupe de Graphisme et Modélisation Moléculaire », St Pierre d'Oléron, France**
  Poster and flash poster presentation:
  *« Structural analysis of β-bulges. »*
  Pierrick Craveur, Agnel Praveen Joseph, Joseph Rebehmed and Alexandre G. De Brevern.

- **21st – 23rd November 2012**
  **SFBBM – « Mécanismes moléculaires et processus vitaux intégrés », Grenoble, France**
  Poster :
  *« Structural analysis of β-bulges. »*
  Pierrick Craveur, Agnel Praveen Joseph, Joseph Rebehmed and Alexandre G. De Brevern.

- **3rd – 6th July 2012**
  **JOBIM, Rennes, France**
  Poster :
  *« Analysis of the structural conservation of β-strand irregularities: the β-bulges »*
  Pierrick Craveur, Agnel Praveen Joseph, Joseph Rebehmed and Alexandre G. De Brevern.

- **26th – 27th March 2012**
  **Biochemical Society – « Intrinsically disordered proteins », York, UK**
  Poster and flash poster presentation:
  *« Local protein conformations: from simple to complex description »*
  Pierrick Craveur, Jean-Christophe Gelly, Joseph Rebehmed, Aurélie Bornot, Agnel Praveen Joseph, Catherine Etchebest and Alexandre G. de Brevern.

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