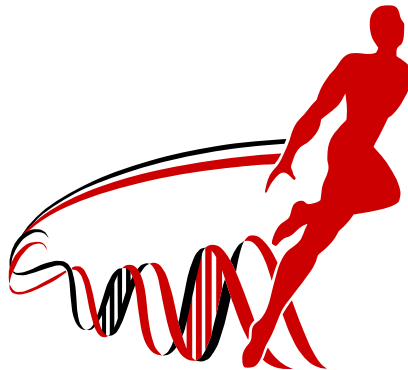


CellML + [CMISS | OpenCMISS]

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Te Whare Wānanga o Tāmaki Makaurau

CellML + CMISS(cm)

- Xerces-C for an XML parser and DOM
 - C++
- libcellml – Andre's initial CellML processing library
 - C++
- CMISS-CellML – C interface to libcellml
 - C/C++
- fecellml.f – provides CMISS interface to CMISS-CellML
 - Fortran 77
- Last real change April 2003
- Minor bug fix April 2008

CellML + OpenCMISS(cm)

- CellML API (current trunk revision)
 - C++
- libocellml – provides 'high-level' Fortran wrapper to functionality required for OpenCMISS(cm)
 - C++/C/Fortran 2003
- cmiss_cellml.f90 – CMISS CellML Environment object management and methods
 - Internal OpenCMISS(cm) “API” for doing cool stuff with CellML.
- Currently being developed, implemented, extended

CellML + CMISS(cm)

- Ipcell file
 - Number of variants
 - Each CellML model – all variables in the model (parameters, state variables, intermediate variables)
 - Set spatially varying variables, save intermediates
 - Initialise parameters, state variables
- Ipmatc
 - Define spatial variation
- Hard-coded support for certain types of models
 - Cellular models – electrophysiology, coupled electromechanics
 - Constitutive laws

CellML + OpenCMISS(cm)

- CMISS CellML Environment
 - Import CellML models
 - 'Flag' model variables as relevant to the simulation
 - Map CellML model variables to OpenCMISS field variables
 - Parameter, intermediate, and state fields (+independent variable(s) fields)
- Use standard OpenCMISS field manipulation to define spatial variation
- Define standard OpenCMISS equation sets and solvers to integrate CellML based fields into any simulation.

Important links

- CellML + CMISS(cm)
 - CMISS examples
(<http://cmis.bioeng.auckland.ac.nz/development/examples/>)
 - cellml
 - Monodomain (b211)
 - Constitutive laws (5g)
 - <http://www.cmiss.org/cm/wiki>
- CellML + OpenCMISS(cm)
 - Tracker items 1226, 2013, 1238
 - Monodomain example
(<http://svnviewer.bioeng.auckland.ac.nz/>)