

# Web alert

## Cell-to-cell contact and extracellular matrix

### Mark Lewis

A selection of World Wide Web sites relevant to papers published in this issue of *Current Opinion in Cell Biology*.

#### Addresses

Eastman Dental Institute, University College London, 256 Grays Inn Road, London WC1X 8LD, UK  
e-mail: mlewis@eastman.ucl.ac.uk

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### Cell–ECM interactions

#### The Hynes Lab

<http://web.mit.edu/ccrhq/hyneslab/>

The laboratory of Richard Hynes (MIT, USA) is one of the world leaders in studies of cellular adhesion. They maintain an excellent web site that is updated fairly regularly and contains a range of ECM-related resources and links.

#### The integrin page

<http://integrins.hypermart.net/index.html>

Although this site is starting to appear dated, with very few or no updates recently, it is still useful as a reference point for information on integrins.

#### Dystrophin–glycoprotein complexes

<http://www.neuro.wustl.edu/neuromuscular/musdist/dag2.htm>

A major cell–ECM adhesion mechanism is via the dystrophin–glycoprotein complex. These pages from the Neuromuscular Disease Centre at the Washington University School of Medicine, St Louis, Missouri, USA, are excellent. They give a comprehensive overview of all the molecules involved and are updated regularly. Outstanding.

### Connective tissue

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<http://www.kumc.edu/instruction/medicine/anatomy/histoweb/ct/ct.htm>

From the Department of Anatomy and Cell Biology, University of Kansas Medical Centre, USA, these pages give a good anatomical overview of connective tissues.

#### Connective tissue ultrastructure

<http://www.udel.edu/Biology/Wags/histopage/empage/ect/ect.htm>

This comprises a collection of electron micrographs showing structures and cells of relevance to connective tissue.

#### Worthington tissue dissociation guide

<http://www.tissuedissociation.com/default.html>

This is a very interesting guide intended for investigators enzymatically dissociating tissues to yield cells for culture. It contains information on the connective tissue/ECM that is integral to a host of tissues.

### Adhesion molecules

#### The cell adhesion domain

<http://www.cell-adhesion.net/>

A site that is 'dedicated to fostering communication between researchers in the field of cell adhesion'. It includes a directory of laboratories working in cell adhesion and an e-mail directory of individuals within these laboratories. The discussion boards are potentially interesting but seem not to be used.

#### Escape to adhesion

<http://www.med.virginia.edu/medicine/basic-sci/cellbio/integrins/index1.html>

Another site containing many aspects related to the field of adhesion. It originated in November 1996 through the efforts of Dr Frederick Horwitz of the University of Illinois and is currently maintained by Dr Nabil Tawil. Its aim is to 'allow everyone to keep abreast of developments in the field of adhesion'. It suffers from the fact that it appears to have not been updated for a couple of years.

#### Adhesion molecules

<http://www.neuro.wustl.edu/neuromuscular/lab/adhesion.htm>

From the same source as the dystrophin–glycoprotein pages (above). It is an excellent resource for cell adhesion molecule information.

#### Adhesion molecules

[http://cellbio.utmb.edu/cellbio/adhesion\\_molecules.htm](http://cellbio.utmb.edu/cellbio/adhesion_molecules.htm)

An introduction, with good illustrations, from a group of web pages providing basic information about cell biology topics. They were developed by Dr Gwen Childs (Chair, Anatomy and Neurobiology, University of Arkansas). The pages are also served and upgraded at URL <http://www.cell-biology.org/>.

### Matrix metalloproteinases and tissue inhibitors of matrix metalloproteinases

#### Overall lab – MMPs

<http://www.clip.ubc.ca/mmmps.shtml>

#### Overall lab – TIMPs

<http://www.clip.ubc.ca/timps.shtml>

These pages have been designed and written by members of the laboratory of Professor Chris Overall, University of British Columbia, Vancouver, Canada. This lab is considered one of the world authorities on the biochemistry of MMPs and TIMPs, so these guides are invaluable.

### Extracellular matrix molecules

#### A database of human collagen mutations

<http://www.le.ac.uk/genetics/collagen/>

This database is maintained by Raymond Dalgleish, Department of Genetics, University of Leicester, and is a compilation of mutations in the human alpha chains of types I and III collagen. A simple but well-constructed and maintained resource.

### **Fibronectin page**

<http://www.gwumc.edu/biochem/ingham/fnpage.htm>

### **Fibronectin**

<http://www.clunet.edu/BioDev/omm/fibro/fibro.htm> or

<http://www2.kenyon.edu/depts/biology/BMB/Chime/Fibronectin/fibro.htm>

Two sites giving information about the most ubiquitous of ECM macromolecules, fibronectin. Both include schematics, background information, references, etc.

## **Cell–cell interactions**

### **Anchoring junctions**

[http://arbl.cvms.colostate.edu/hbooks/cmb/cells/pmemb/junctions\\_a.html](http://arbl.cvms.colostate.edu/hbooks/cmb/cells/pmemb/junctions_a.html)

A basic but well-presented introduction to the various mechanisms that cells use to attach to each other. It is one of a series of biomedical hyperbooks designed by staff from the Colorado State University, USA.

### **Cadherin superfamily genes**

[http://www.mrc-](http://www.mrc-lmb.cam.ac.uk/genomes/Cadherins/cad_web_pages.html)

[lmb.cam.ac.uk/genomes/Cadherins/cad\\_web\\_pages.html](http://www.mrc-lmb.cam.ac.uk/genomes/Cadherins/cad_web_pages.html)

### **The cadherin resource**

<http://calcium.uhnres.utoronto.ca/cadherin/flash.htm>

These two sites are dedicated to the cadherin family of cell–cell attachment molecules. Both are databases, concerned with classification and cataloguing cadherin proteins into families.

### **Epithelia**

[http://cellbio.utmb.edu/microanatomy/epithelia/epithelia\\_slides/Epithelia%20slides.ppt](http://cellbio.utmb.edu/microanatomy/epithelia/epithelia_slides/Epithelia%20slides.ppt)

This site contains a very nice Powerpoint97 presentation from Dr Gwen Childs (Chair, Anatomy and Neurobiology, University of Arkansas) detailing the microanatomy and related cell biology of epithelial cell layers. This is of great value to those interested in cell–cell and cell–ECM interactions because this tissue is the model for many of these processes. The pages are also served and upgraded at <http://www.cell-biology.org/>.

### **Junctions between cells**

<http://www.ultranet.com/~jkimball/BiologyPages/J/Junctions.html>

A simple introduction from the constantly updated and comprehensive *Online Biology Textbook* of John W Kimball (<http://www.ultranet.com/~jkimball/BiologyPages/>), a lifetime teacher of biology based in New England, USA.

### **Selectin ligands**

[http://hsc.virginia.edu/medicine/basic-sci/biomed/ley/selectin\\_ligands.htm](http://hsc.virginia.edu/medicine/basic-sci/biomed/ley/selectin_ligands.htm)

Part of the 'Inflammation: The Leukocyte Adhesion Cascade' web pages by Dr Klaus Ley, University of Virginia, Department of Biomedical Engineering, Charlottesville, USA. This is a comprehensive guide to leukocyte adhesion, rolling and transmigration through endothelium, and includes discussion of the adhesion molecules involved in these processes.