ture medium. Next, a sheet of fibroblasts was rolled onto the outside to provide the adventitia. After a maturation period of 2 months, the inner tubular mandrel was removed, and endothelial cells were seeded in the lumen. All culture media contained ascorbic acid until seeding of the endothelial cells. In total, the production of the graft takes 3 months of culture.

The authors tested the in vivo graftability of this construct by implanting it in dogs. To avoid acute rejection of the xenograft, the implant was not endothelialized. The grafts withstood surgical handling and in vivo hydrostatic pressures. However, there was a high rate of graft failure due to thrombosis, as would be expected of a vessel lacking endothelial lining. The construction of a similar dog-engineered blood vessel is needed to test the long-term value of this synthetic graft in an animal model.

Clearly, this method opens up the door for interesting therapeutic opportunities such as the generation of custom-made vascular grafts or the use of these grafts as gene therapy "sanctuaries." In the future, one can imagine assembling these vessels with other custom-made tissues to make de novo organs. Before this happens, researchers will first need to reduce the time needed to generate the vessels in order to apply this approach to elective vascular reconstruction. Also, the model will have to be adapted to generate vessels with a length of 15 cm or longer so they can be used in vascular reconstruction.

Although physicians will have to wait for clinical applications, scientists interested in studying the vascular cells or in experimenting with the effect of physical forces on them could begin working at once with this very realistic human vessel model.

–Richard Peters and Robert Sikorski

References

1. C. Weinberg and E. Bell, *Science* **231**, 397 (1986).
2. G. Lantz *et al.*, *J. Invest. Surg.* **3**, 217 (1990).
3. N. L'Heureux *et al.*, *FASEB J.* **12**, 47 (1998).

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On the PROW

SITE FINDER

Protein Reviews on the Web (PROW; www.ncbi.nlm.nih.gov/prow/) is an online knowledge environment that organizes human protein and gene information. As a proof of principle, the editors of PROW have first tackled human cell-surface molecules (CD). There are approximately 200 human CD cell-surface molecules, and information about each of them is available on this Web site.

The content on PROW is a combination of "PROW Guides," peer reviewed contributions from selected experts in the field and "Forum entries," which are open World Wide Web submissions. The latter are reviewed by editors before appearing on the site. PROW can be searched by entering query terms or viewing an index. For each molecule, short reviews are available in bullet format.

Hypertext links to other Web resources such as SwissProt, Mendelian Inheritance in Man, and Medline/PubMed are available to add more depth to the content. Viewers are encouraged to provide feedback by adding comments that can be linked to the review. In principle, the PROW approach can be applied to other families of molecules.

The open, global approach of PROW is a highly laudable one, but for it and other similar Web-based projects to be sustainable, contributions from many authors will be essential. Over time, it may be hard to solicit submissions on goodwill alone. Perhaps academic tenure boards will start taking into consideration an author's track record for publishing in sites such as PROW.

–Richard Peters and Robert Sikorski

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The X Files

NET TIPS

How often do you receive a file attached to an e-mail message only to find out you can't open it, or, if you open it, you can't read it? The problem arises usually for one of two reasons. The first case is that the file was compressed during the sending process, and your system lacks the necessary utility to uncompress the file. The other case is that you do not have the necessary application installed on your computer to read the file, even if it is not compressed. Indeed, with all the software applications floating around, it is often difficult to know what to do with the file you have received if you don't have the particular application used for creating the file. Here is a step-by-step approach to solve file attachment problems: First, if you do not have a compression/decompression utility installed on your system, get one. In today's e-mail/Internet world, this is an absolute must. Compressed files come in various "flavors," characterized by an extension, as in FILENAME.EXT, where EXT is the extension. The following is a list of the most common compressed file formats with their extension code in parentheses: StuffIt (.sit), Compact Pro (.cpt), AppleLink (.pkg), ZIP (.zip), ARC (.arc), gzip (.gz), tar (.tar), UNIX Compress (.Z), LHA (.lha), uuencode (.uu), BinHex (.hqx), MacBinary (.bin), and Base64/MIME (which is internal to e-mail systems). To uncompress these types of files on the PC, we suggest using WinZIP. It is an acclaimed compression/decompression utility for the PC which can handle popular file formats. Version 6.3 has recently been released, and a free evaluation copy can be downloaded from the Web at www.winzip.com/.

For the Mac, we suggest StuffIt Deluxe. This commercial product is the most popular compression/decompression and file decoding utility for the Mac, and it too can handle almost any file format. A free "Lite" version is available, but it does not possess all the muscle power of the commercial version (www.aladdinsys.com/deluxe/index.html).

Once you have been able to decompress the file, check to see if you have the application that created it. For instance, use Microsoft Word to open a Word file. If you do not have the application, try using a similar application: They often have conversion scripts built into them. For instance, you can usually read a Word file by using WordPerfect. If that does not work, you may need a file conversion program. This utility is software that lets you view files and convert them to a different format that you can edit on your system. PC users would be well served by using Conversions Plus. You can view almost any file by using this utility on a PC (www.dataviz.com/Products/CPW/CPW_Home.html). For Mac users, try using StuffIt Deluxe, because it has a file conversion utility bundled with its decompression utility. Finally, if everything else fails, go on the Internet to find a file conversion specific to that file format. There are a countless number of them for various applications and data formats, such as the ones for the various versions of Word (www.microsoft.com). We have listed a few key places to look at www.medsitenavigator.com/tips.

–Richard Peters and Robert Sikorski

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