

Part V of *Human Papillomaviruses 1996* is divided into two sections. The first introduces ways of accessing papillomavirus information from the World Wide Web (WWW), the second is a list of references.

### **Papillomavirus Information on the World Wide Web**

All of the information in *Human Papillomaviruses 1996* and its predecessors in 1994, and 1995, as well as numerous data files, are available to the public through the World Wide Web, a system of links between Internet locations that can be navigated with graphical “browsing tools” such as Mosaic and Netscape. We are strenuously urging our subscribers to make use of our Web site. Using electronic documents and data offers many advantages over the production and use of paper documents.

- It saves paper, ink, metal, solvents, plastics, postage, fossil fuels, and time that go into the printing and distribution of hundreds of copies of this large book.
- Electronic documents that contain all the formatting and complex graphics of a printed document can now be produced and placed on the Web where users may view and print them. For example, an exact replica of this entire document, *Human Papillomaviruses 1996* is available from our Web site.
- Electronic documents are readily corrected and kept up to date. As we prepared sections of this year’s compendium we have been “prepublishing” them on our Web site. In this way the latest and most accurate information is always available to users.
- There is also the possibility of interaction between users and the database staff at Los Alamos. Just as documents and data can be retrieved from the Web site, so can they be posted to the site.
- Data and documents on the Web, far from being static pieces of paper, are embedded in a system that allows searching for items of interest—references, sequences, author names, etc. Our search capabilities are relatively primitive now but will become more powerful in the future.
- The Web, as its name implies, is a system of links spread throughout the world. Our Web site provides links to other sites that are useful to virologists and sequence biologists.
- A review and recommendation of our site to papilloma-virologists by Robert D. Burk appeared in *Papillomavirus Report* 7:25–28.

In order to access the WWW, you must have, (1) a windowing capability such as X Windows, MS Windows, or Apple Macintosh, (2) an Internet Protocol (IP) connection, and (3) a copy of a browser program such as Mosaic or Netscape for the appropriate windows environment. If you are not already using Mosaic (a free program) you can get a copy by anonymous ftp from <ftp://ftp.ncsa.uiuc.edu/Mosaic>. Netscape may be purchased by sending e-mail to [sales@netscape.com](mailto:sales@netscape.com) or phoning 415-528-2555. Our use of Netscape in the following description of our Web site is purely illustrative and should not be construed as an endorsement of that product.

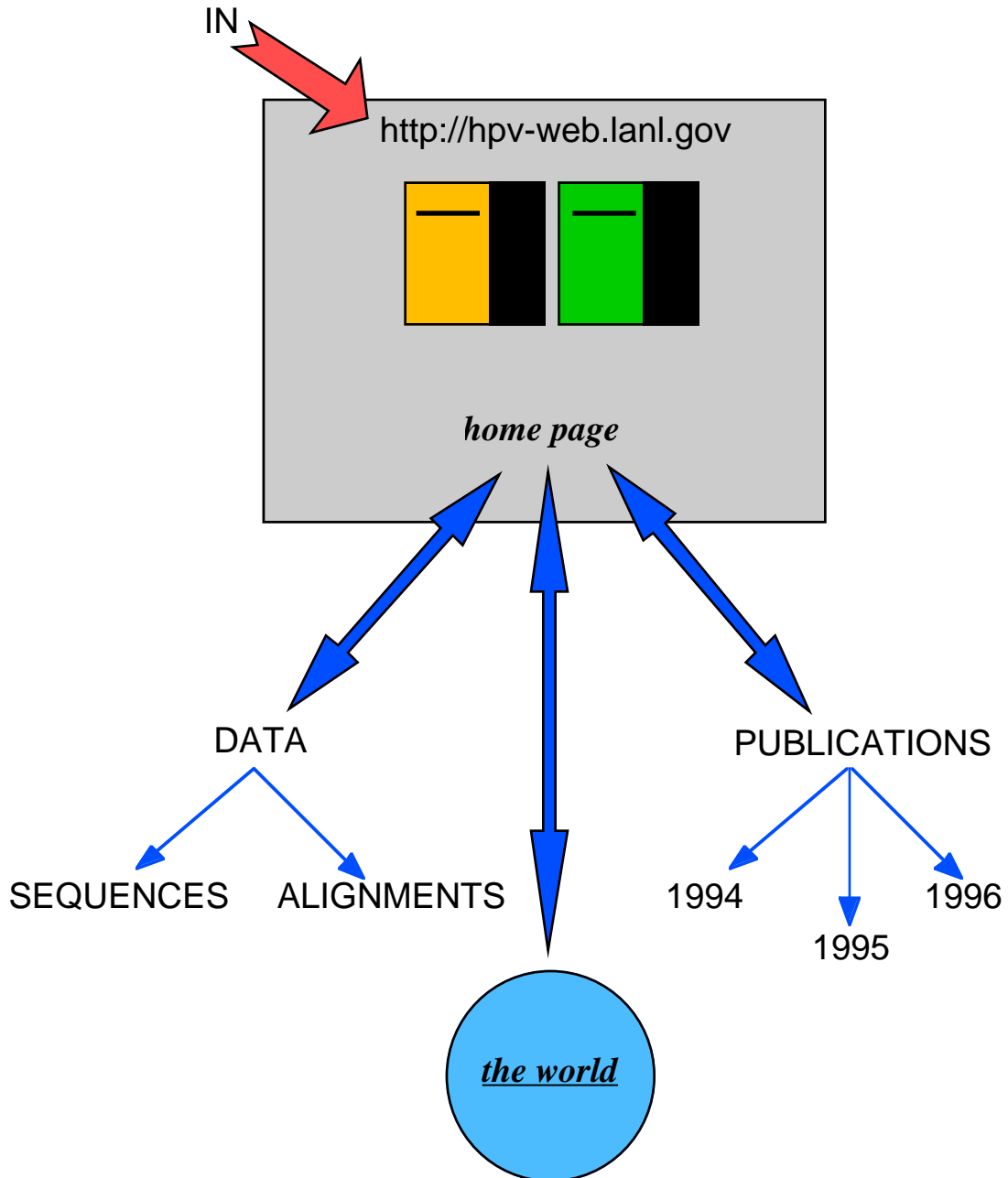
The browsing tools designed for the WWW make it easier than before to locate and acquire information on the Internet. You simply point and click at text and objects on your screen. These objects are either links to files, which cause the files to be sent to your local computer, or they are links to other machines from which files may be accessed. “Files” can mean words, pictures, sounds, or movies. The WWW address (or “URL”) for the HPV database is:

<http://hpv-web.lanl.gov>

## Using the World Wide Web

### Tour of the World Wide Web

We present here a short tour of our Web site, which may give the uninitiated a feel for how the Web works. Our site on the Web is diagrammed as in the illustration below. When you access our site from elsewhere (represented by the "IN" arrow) you are at our so-called "home page." From here you can follow links, shown as double headed arrows, to our data, our publications, or other sites spread across the world.



Screen 1

You begin by “launching” your browser program. (The browser in the illustrations here is Netscape.) In the Netscape window on your screen there appears the starting point for your navigation of the Web (Screen 2). This starting point can be any address you have specified, it could even be the HPV database URL; by default it is the Netscape “home page.”



Screen 2

## Using the World Wide Web

From your starting point you select “Open Location” from the File menu in the upper left corner of the window. A small window entitled Open Location appears, you type in the URL of the HPV Database `http://hvp-web.lanl.gov` in the space provided (Screen 3), and click Open. You can also store frequently visited URLs in a list called “bookmarks” or “hotlist” and select your destination from this list rather than typing its URL.



Screen 3

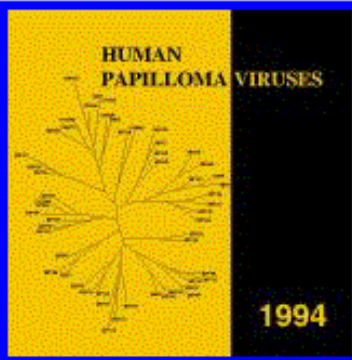
After a few seconds a new image appears in the window (Screen 4), the home page of the HPV Database. The text in the window is formatted and pleasantly readable. All the text on the home page cannot fit on the screen at once, but you can scroll through it by clicking your mouse on the down arrow in the lower right.

**Netscape: HPV Sequence Database WWW Home Page**

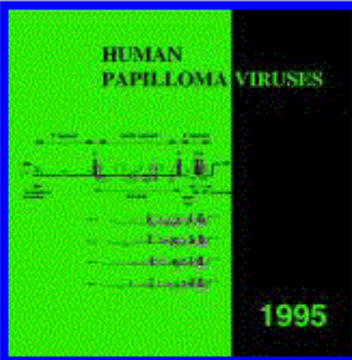
Location:

What's New? What's Cool? Handbook Net Search Net Directory Software

## HPV Sequence Database



**1994**



**1995**

The Human Papillomaviruses Database collects, curates, analyzes, and publishes genetic sequences of papillomaviruses and related cellular proteins. Our group includes molecular biologists, sequence analysts, computer technicians, post-docs and graduate research assistants. We are located at [Los Alamos National Laboratory](#) in the Theoretical Biology and Biophysics Group and are funded by the Division of Microbiology and Infectious Diseases of the National Institute of Allergy and Infectious Diseases through an interagency agreement with the Department of Energy. More information about database staff, address and phone is [here](#).

If you would like to have the main features of this site pointed out by a "guided tour" press this button. Alternatively you can download an Adobe Acrobat file of the [Web Tour](#) that you can print out and read.

**Guided Tour of This Site**

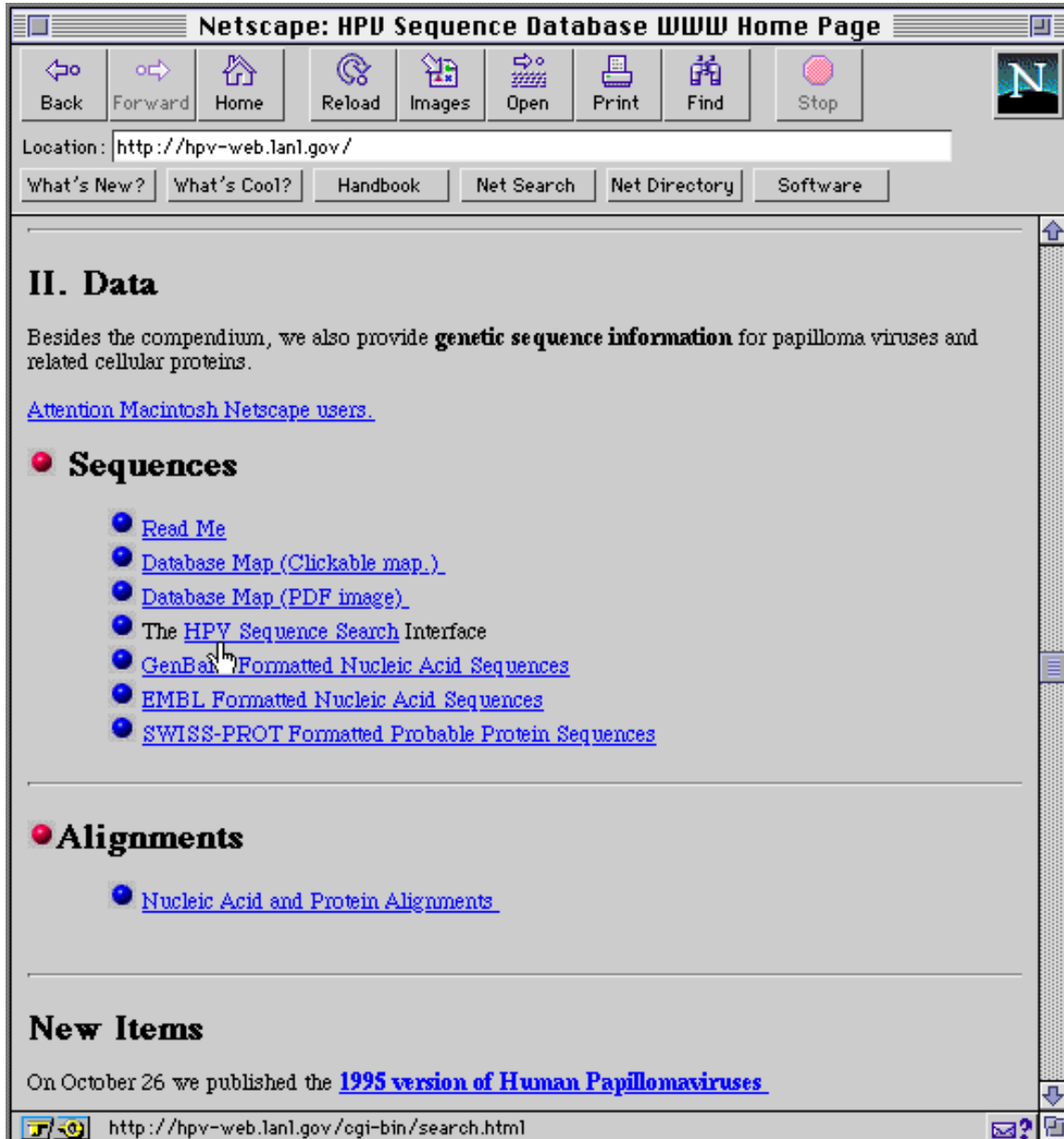
This Web site has two main branches. The first contains our 1994 and 1995 compendia of

Document: Done.

Screen 4

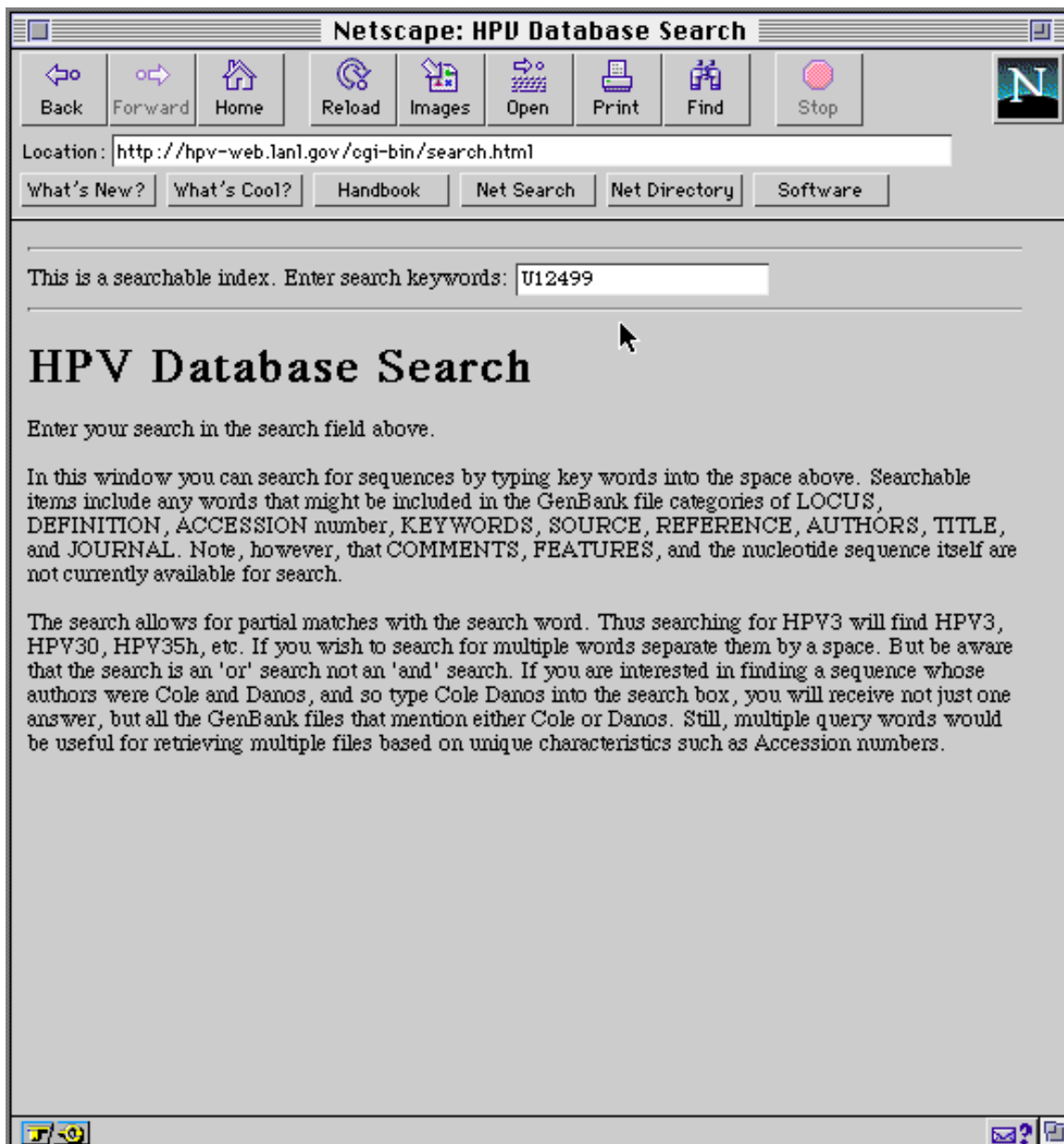
## Using the World Wide Web

There are two branches to our site: (1) publications and (2) data. We will follow the data branch first. As you scroll down through our home page you come to an area labeled "II. Data" as shown here. The data area of this Web site contains links to genetic sequences of papillomaviruses stored in GenBank, EMBL, and SWISS-PROT formats. It also contains links to alignments of papillomavirus genes and their proteins. Some of the text is underlined and, on color monitors, shows in a different color. These underlined words are links to other locations on the WWW. The locations may be local or they may be on computers half way around the world; the links to them look exactly the same and are activated in the same way. If we position our cursor arrow at one of the links, as we have in Screen 5, the arrow turns into a pointing hand. Pressing the mouse button transfers us quickly and automatically to the location attached to that link. In our example the finger points to [HPV Sequence Search](#).



Screen 5

Upon clicking HPV Sequence Search the search area appears on the screen. An explanation of how to use the search utility is included in the window. We type in a search pattern – in this example U12499, a GenBank accession number – and hit the carriage return.



Screen 6

## Using the World Wide Web

The result of the search, an abbreviated GenBank file, appears. We can retrieve the entire file by positioning the pointing hand on the link called Sequence and clicking.

The screenshot shows a Netscape browser window titled "Netscape: Result of search for 'U12499'". The address bar contains the URL "http://hpv-web.lanl.gov/cgi-bin/search.html?U12499". Below the address bar are several navigation buttons: Back, Forward, Home, Reload, Images, Open, Print, Find, and Stop. There are also buttons for "What's New?", "What's Cool?", "Handbook", "Net Search", "Net Directory", and "Software". The main content area displays the search result for "U12499" in a GenBank format. The text includes fields for LOCUS, DEFINITION, ACCESSION, SOURCE, ORGANISM, REFERENCE, AUTHORS, TITLE, and JOURNAL. A blue underlined link labeled "Sequence" is visible, with a mouse cursor pointing at it. Below the search result, it says "1 entries were found". The status bar at the bottom shows the file path "ftp://atlas.lanl.gov/pub/papilloma/GenBank-files/./Human-papilloma/HPV62MY911.gb".

**Result of search for "U12499".**

LOCUS HPV62MY911 449 bp ds-DNA VRL 16-OCT-1994  
DEFINITION Human papillomavirus type 62 (HPV-62), partial L1 cds, My09/My11 region.  
ACCESSION U12499  
SOURCE Human papillomavirus type 62 DNA isolated from a patient with vulvar intraepithelial neoplasia (VaIN).  
ORGANISM Human papillomavirus type 62  
Viridae; ds-DNA nonenveloped viruses; Papovaviridae; Papillomavirus.  
REFERENCE 1 (bases 1 to 449)  
AUTHORS Bernard,H.-U. , Chan,S.-Y. , Manos,M.M. , Ong,C.-K. , Villa,L.L. , Delius,H. , Peyton,C.L. , Bauer,H.M. , and Wheeler,C.M.  
TITLE Identification and assessment of known and novel human papillomaviruses by PCR amplification, restriction fragment length polymorphisms, nucleotide sequence, and phylogenetic algorithms  
JOURNAL J. Infect. Dis. (1994) In press  
[Sequence](#)

1 entries were found

ftp://atlas.lanl.gov/pub/papilloma/GenBank-files/./Human-papilloma/HPV62MY911.gb

Screen 7



The result, the complete GenBank file, is shown in Screen 8. This file may be transferred to your local computer in its entirety by clicking on "File" in the menu bar at the top of the screen and selecting "Save As . . ." from that menu. (Note! users of Netscape, for Macintosh, at least, may have to use a slightly different procedure for downloading files. There is a link entitled "Attention Macintosh Netscape users" on our home page. Consult that for detailed instructions.) Our search mechanism is currently quite primitive. You can only search for GenBank files. If you are interested in EMBL-format files you will need to find them "by hand" on atlas.

**Netscape: HPV62MY911.gb**

Location: <ftp://atlas.lanl.gov/pub/papilloma/GenBank-files/./Human-papilloma/HPV62MY911.gb>

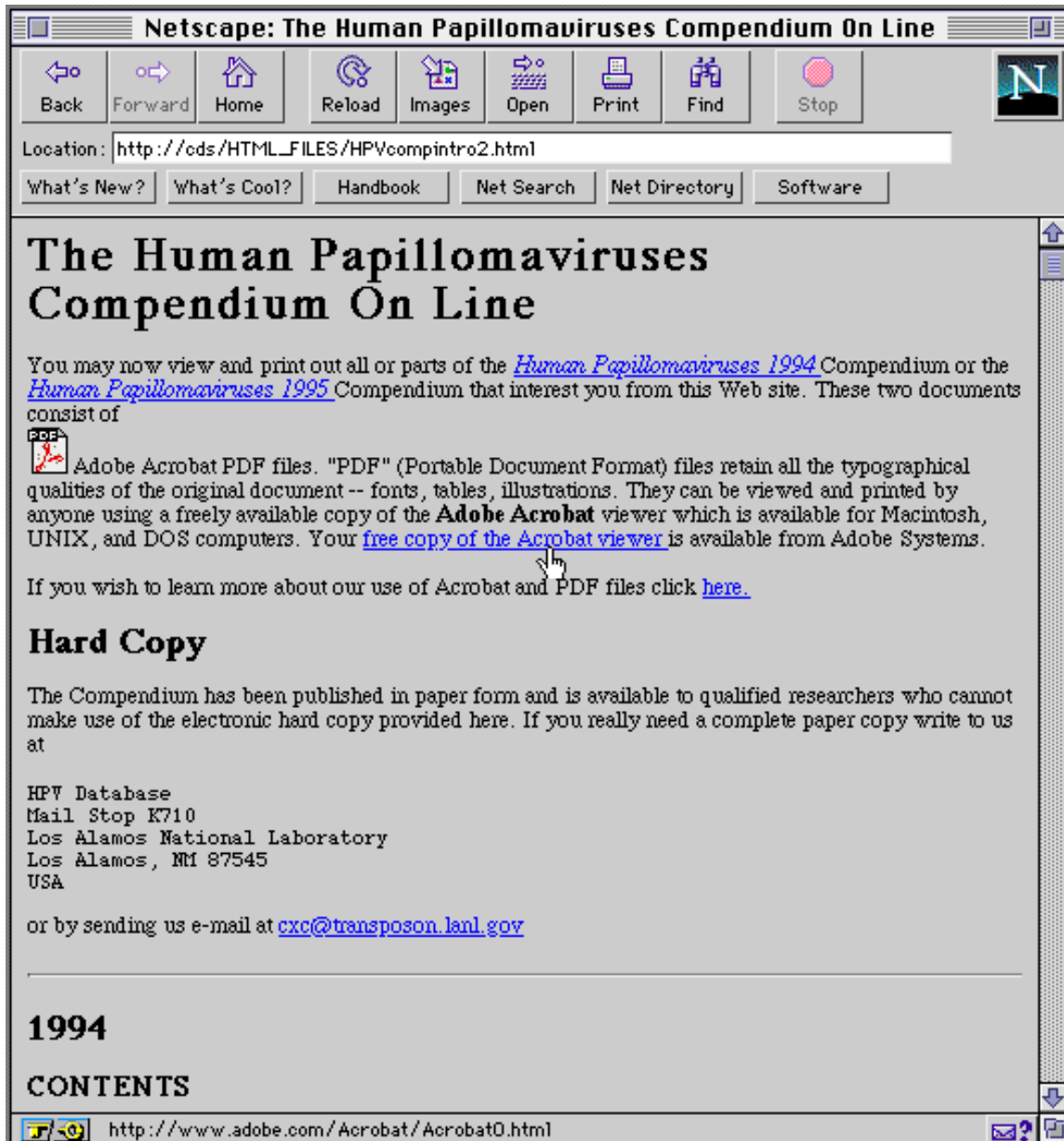
What's New? What's Cool? Handbook Net Search Net Directory Software

LOCUS HPV62MY911 449 bp ds-DNA VRL 16-OCT-1994  
 DEFINITION Human papillomavirus type 62 (HPV-62), partial L1 cds, My09/My11 region.  
 ACCESSION U12499  
 SOURCE Human papillomavirus type 62 DNA isolated from a patient with vulvar intraepithelial neoplasia (VaIN).  
 ORGANISM Human papillomavirus type 62  
 Viridae; ds-DNA nonenveloped viruses; Papovaviridae; Papillomavirus.  
 REFERENCE 1 (bases 1 to 449)  
 AUTHORS Bernard,H.-U., Chan,S.-Y., Manos,M.M., Ong,C.-K., Villa,L.L., Delius,H., Peyton,C.L., Bauer,H.M., and Wheeler,C.M.  
 TITLE Identification and assessment of known and novel human papillomaviruses by PCR amplification, restriction fragment length polymorphisms, nucleotide sequence, and phylogenetic algorithms  
 JOURNAL J. Infect. Dis. (1994) In press  
 STANDARD full staff review  
 COMMENT HPV-62 has recently been characterized and isolated from a vulvar intraepithelial neoplasia by Dr. T. Matsukura. The cloned DNA was subsequently sequenced by Dr. H. Delius over the L1 MY09/MY11 segment. HPV-62 and the several other types recently sequenced over this region by Dr. Delius were used as type-specific probes to screen DNA for novel genital HPV types. The screened DNA was obtained from four recent epidemiological studies. Primer regions are annotated in the sequence; information in this region is not accurate due to primer degeneracy.  
 FEATURES Location/Qualifiers  
 CDS <1..>449  
 /note="putative"  
 /product="major capsid protein"  
 /gene="L1"  
 /note="putative"  
 /codon\_start=1  
 /translation="AQGHNNGICWFFNELFVTVVDTTRSTNFTICTASTAAEYATNFRFLRHTEEFDLQFIFQLCKIQLTPEIMAYLHNMNKDLLDDWNFGVLPFPSTSLDETYHYFESRAITCQRGLPTRPKVDPYAQMTFWTVVLDKDKLSTDLLDQFPLG"  
 BASE COUNT 116 a 92 c 99 g 142 t  
 ORIGIN

Screen 8

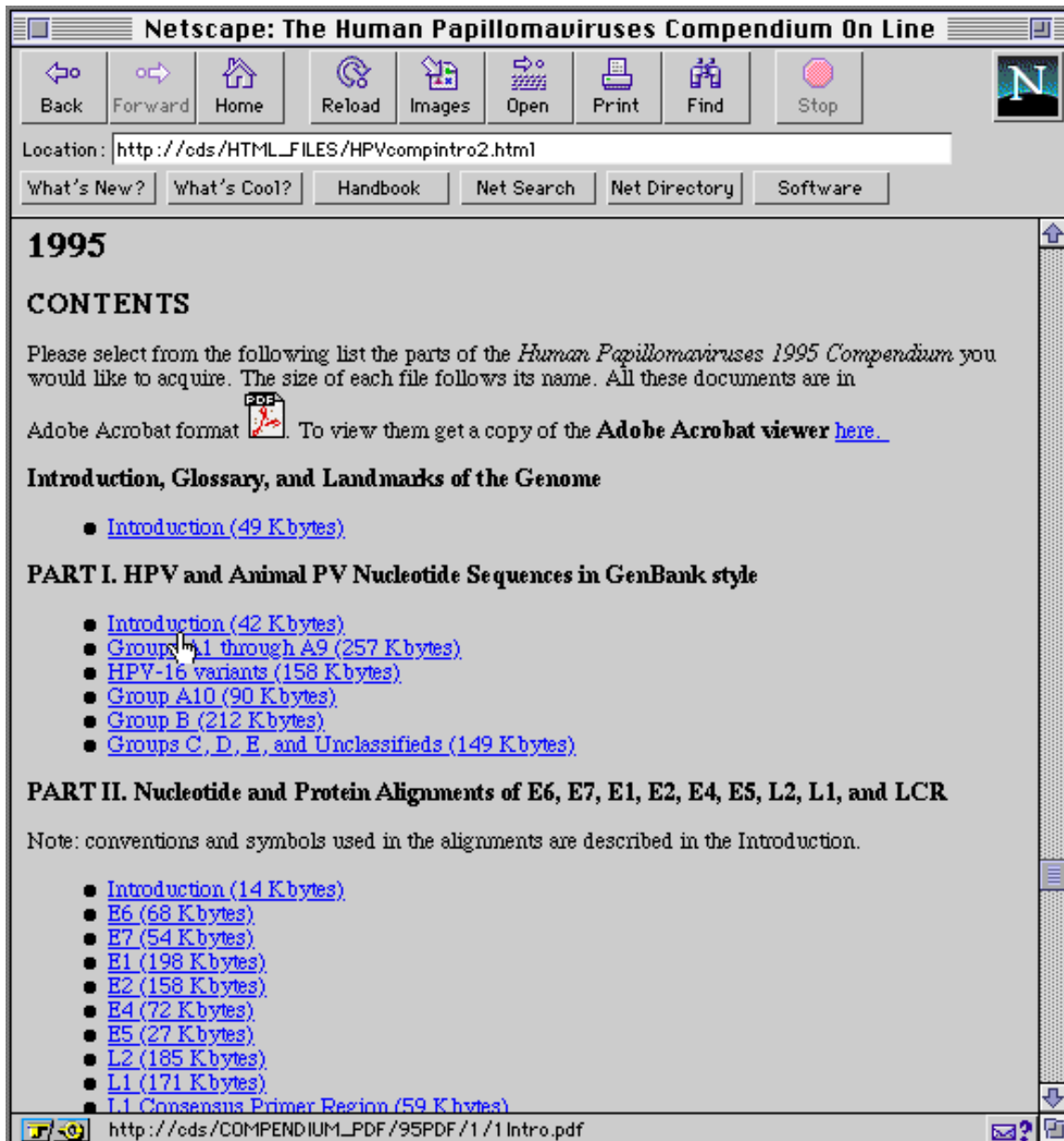
## Using the World Wide Web

As we follow a series of links on the WWW, the browser remembers the places we have been and allows us to return to them by clicking the "Back" button located at the top left corner of the window. If we return to the HPV home page we can follow links that lead down the publications branch of this site, the "on-line version of the *Human Papillomaviruses compendia*." To reach these publications we can click the orange or green book cover illustrations at the top of the home page or we can follow the links under part "I. The HPV Compendium," also on the home page. Either way we arrive at the page displayed below. This page introduces the on-line version of our publication and describes the Adobe Acrobat viewer which you will need to view the publications. The viewer is free and can be obtained by following the link indicated.



Screen 9

We can view the tables of contents of the 1994, 1995, or 1996 *Human Papillomaviruses* publication either by clicking on the links in the first line, or scrolling down the page to where the Tables of Contents begin. The graphic below shows a part of the table of contents of the 1995 book. The pointing hand is about to retrieve the Introduction to Part I. This link, though it looks the same as others, behaves differently. A copy of the Introduction file is transferred to your local computer and the Adobe Acrobat viewer is automatically launched. Acrobat is a “helper application” used to read files that are in a format which is nonstandard for the WWW.



Screen 10

## Using the World Wide Web

The Acrobat viewer displays the article (see below), which is written in “portable document format” (PDF), and allows you to print out a perfect copy of it, exactly as it appears in the printed compendium. Acrobat viewer has a search mechanism that allows you to search in a document for words that might lead you to a subject of interest. For example, Part V of the compendium lists hundreds of HPV references. Those references are searchable with Acrobat Viewer. Searches for specific nucleotide sequences in Part I (e.g. AATAAA) will be less useful because of the way GenBank files are formatted, with spaces and sequence numbers embedded in the file.

**I**

**HPV and Animal PV  
Nucleic Acid Sequences**

For Part I of the 1995 compendium we have adopted (for the most part) a recently proposed binomial classification system of the papillomaviruses [1]. This classification, which results from the deduced evolutionary relationships among the papillomaviruses, divides the known universe of papillomavirus genomes into five “Supergroups,” A-E, each of which is divided into a number of “Groups.”

Supergroup	Description
A	genital HPVs
B	EV HPVs
C	ungulate fibropapillomaviruses
D	BPVs causing true papillomas
E	animal and human cutaneous PVs

This classification supplants the simple groupings (A, B, C, D) by which we ordered our sequences in last year's publication. The relationship of the old to the new classification scheme is given in Table I-1; the new classification is listed horizontally with old group equivalents below.

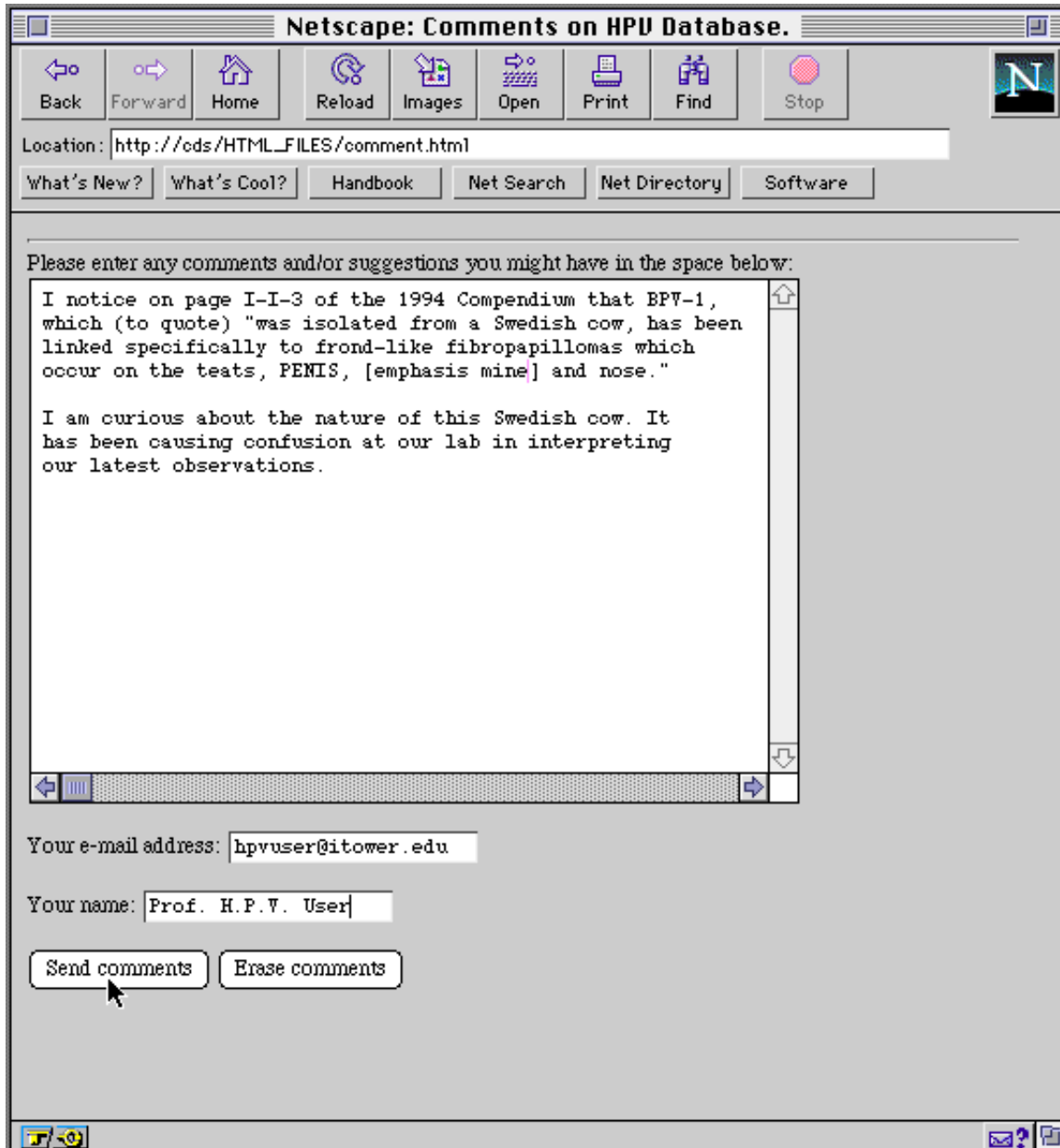
Supergroup	A											B		C	D	E	
Group	1	2	3	4	5	6	7	8	9	10	11	1	2	1	2	1	1
old group	F	F	E	F	D	D	C	F	A	B	B	H	G	I	I	I	G

For simplicity of presentation, we lump all the animal PVs together, i.e., supergroups C and D, ROPV, RPV, etc., are treated as “animal papillomaviruses.” RHPV and PCPV, however, are placed in groups A8 and A9 respectively. The new groupings are in accord with the published findings of H.-U. Bernard and coworkers [1,2,3,6] and of van Ranst and coworkers [4]. A review by De Villiers [5] discusses the extent to which the phylogenetic relationships agree with, in some instances, and deviate from, in other instances, phenotypic and clinical observations.

There are now 189 sequences of human PVs, animal PVs, and related cellular proteins in our database. To aid the reader in locating sequences of interest we present on the following pages an

Screen 11

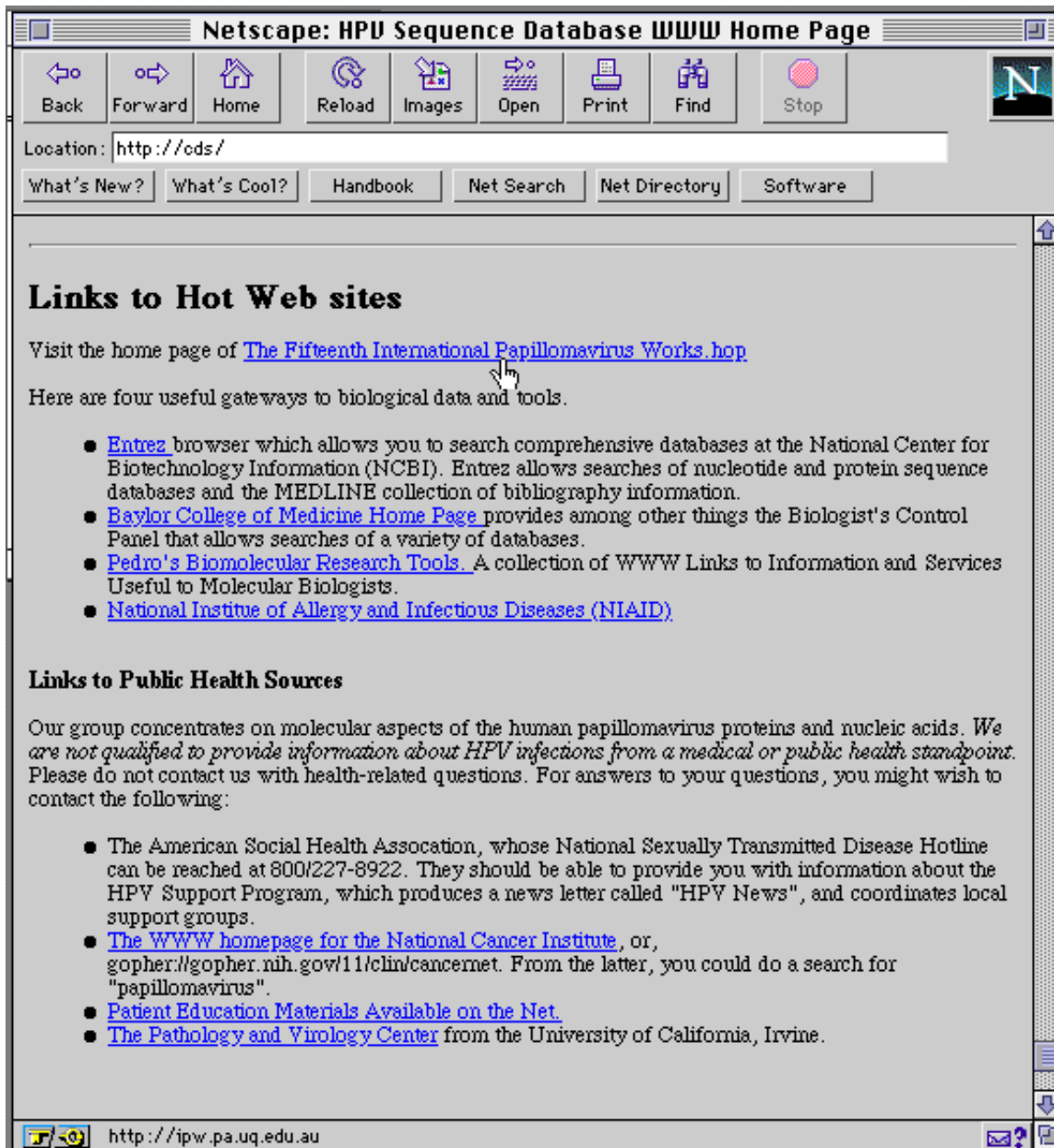
Our Web site provides users an opportunity to communicate with us from several points on the site. An electronic "comments" form can be activated that allows you to write us a letter to which we promise to respond.



Screen 12

## Using the World Wide Web

Finally, we have connected our site to several other locations of great utility to biologists as shown below. The link to these sites occurs at the bottom of the home page.



Screen 13

### Data Access by FTP

The complete database of sequences and alignments are also available electronically from a server here at Los Alamos called "atlas". In the first section of Part V we described accessing this, and other, information using the WWW. You may also retrieve information from atlas by the "anonymous ftp" method. In the following instructions for accessing atlas, what you actually type at your terminal is shown in **boldface** type [with an explanation shown in square brackets]. What the server responds with is shown indented in *italic type*.

---

**ftp atlas.lanl.gov** [this ftp command connects your computer to atlas]  
    *Name (atlas.lanl.gov):* [atlas asks for your user name]  
**anonymous** [for offsite users anonymous is the only name that works]  
    *Guest login ok, send ident as password.*  
    *Password:*  
**[enter your e-mail address or your name as ident]**  
    *Guest login ok. access restrictions apply.*  
**cd pub** [change to the directory called pub]  
    *CWD command successful*  
**cd papilloma**  
**ls** [this lists the files and directories inside of papilloma]  
    *SWISS-PROT-files, RoadMap, Alignments, ReadMe, EMBL-files, GenBank-files*  
**pwd** [to show your location in the file hierarchy]  
    *"/pub/papilloma" is current directory.*  
**cd GenBank-files/Human-papilloma** [move down 2 directories]  
**ls** [all the GenBank files are listed]  
**get HPV47.gb** [this copies the file HPV47.gb to your home computer]  
**bye** [this disconnects you from the server]

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A map of the HPV directories and files on atlas is reproduced on the following page. Many of the directories contain ReadMe files that describe the contents. This map also appears on our Web site in a clickable form. By clicking on different areas of that map you are instantly connected to that part of the database.

## Using the World Wide Web

### Instructions for Accessing ftp Server "atlas"

In the following instructions, what you actually type at your terminal is shown in **boldface** type [with an explanation shown in square brackets]. What the server responds with is shown indented in *italic* type.

**ftp atlas.lanl.gov**

*Name (atlas.lanl.gov):*

**anonymous**

*Guest login ok, send ident as password.*

*Password:*

**[enter your e-mail address as ident]**

*Guest login ok, access restrictions apply.*

**cd pub** [change to the directory called pub]

*CWD command successful*

**cd papilloma**

**ls** [this lists the files and directories inside of papilloma]

*SWISS-PROT-files, RoadMap, Alignments, ReadMe, EMBL-files, GenBank-files*

**pwd** [to show your location in the file hierarchy]

*"/pub/papilloma" is current directory.*

**cd GenBank-files/Human-papilloma** [move down 2 directories]

**ls**

*[all the GenBank files are listed]*

**get HPV47.gb** [this copies the file HPV47.gb to your home computer]

**bye** [this disconnects you from the server]

## MARCH 1996\* MAP OF HPV DATABASE ON "ATLAS"

\* Data subject to continuous revision

