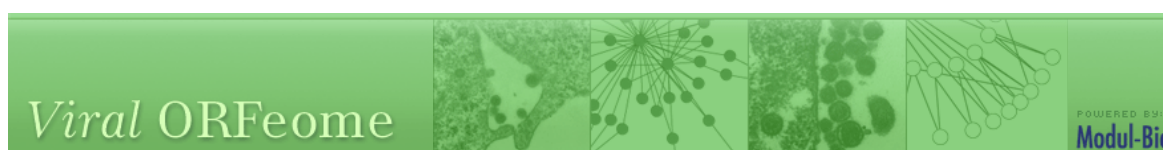


MBio-DB™

Custom Bioinformatic Database



Viral ORFeome

MBio-DB™

Modul-Bio can develop custom bioinformatic databases for managing, tracking and publishing your biological data. These databases can be either stand alone or fully integrated with our LIMS.

Viral ORFeome Project

The aim of this project is to study virus protein interaction with host proteins.

[IFR-128 BioSciences](#) (INSERM, Lyon, France), [Pasteur Institute](#) (Paris, France) and [Modul-Bio](#) bioinformatic company have recently joined their efforts to lead the *Viral ORFeome Project*. Our goal is to facilitate functional analysis of viral proteins by providing to the scientific community a reference collection of viral encoding sequences (ORFs) cloned into a versatile cloning system. A single in vitro recombination reaction will be sufficient to transfer any viral ORFs from the collection into any expression vector and perform functional assays (such as yeast two-hybrid, mass spectrometry, GFP-tagging, etc.). These laboratories are also engaged in the large scale mapping of viral-host protein interactions. In a first attempt, we expect the *Viral ORFeome* collection to cover dozens of viral species and strains, and several hundred viral ORFs. Built by academic labs to serve the scientific community, this reference collection is meant to facilitate material exchange and functional genomic analysis of viral infections. In this database built by scientists from Modul-Bio, you will find all informations relative to viral ORFs.

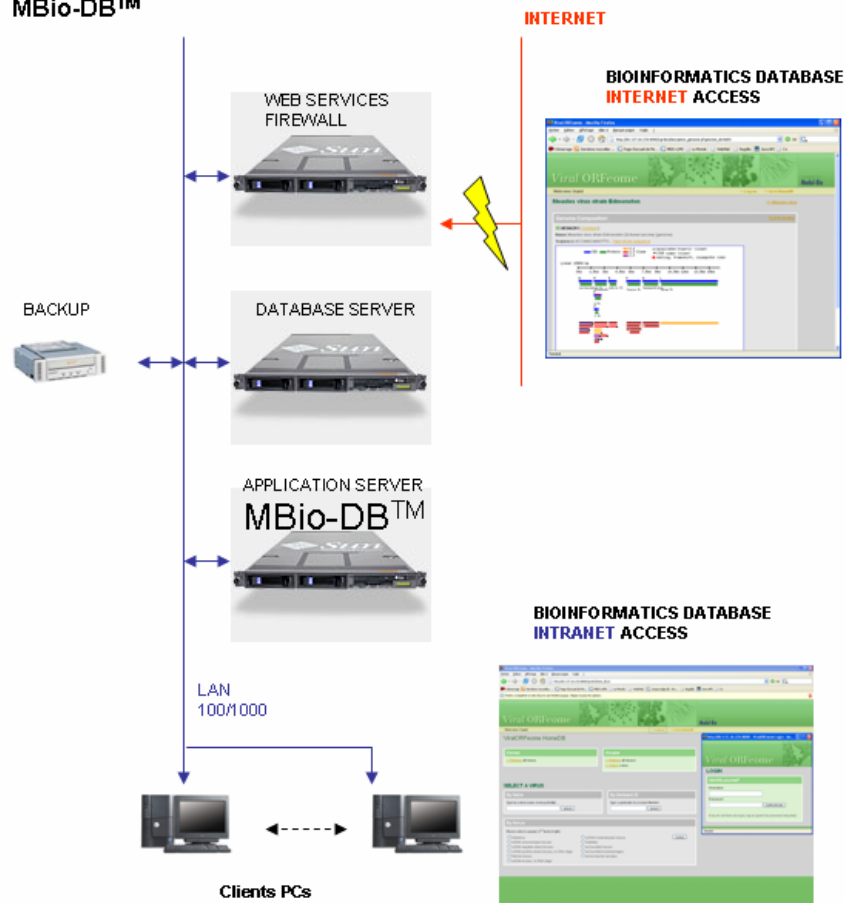
This custom bioinformatic database:

- contains genome sequences of all viruses from Genbank (1557 viruses genomes) + different strains displays gene structure information and location (with graphical interface of all viruses genomes)
- allows the design of primers on any ORF (Open Reading Frame), primers management and visualization
- tracks ORFs cloning from all viruses
- tracks protein-protein interaction study
- search tools to query viruses interaction, primers, clones

Viral ORFeome database architecture

Modul-Bio Bioinformatics Database Architecture

MBio-DB™



MBio-DB™

Viral ORFeome home page



Viral ORFeome - Mozilla Firefox

http://82.127.26.233:8000/

Viral ORFeome POWERED BY: Modul-Bio

Project

IFR-128 BioSciences (INSERM, Lyon, France), Pasteur Institute (Paris, France) and Modul-Bio bioinformatic company have recently joined their efforts to lead the *Viral ORFeome Project*. Our goal is to facilitate functional analysis of viral proteins by providing to the scientific community a reference collection of viral encoding sequences (ORFs) cloned into a versatile cloning system. A single in vitro recombination reaction will be sufficient to transfer any viral ORFs from the collection into any expression vector and perform functional assays (such as yeast two-hybrid, mass spectrometry, GFP-tagging, etc.). These laboratories are also engaged in the large scale mapping of viral-host protein interactions. In a first attempt, we expect the *Viral ORFeome* collection to cover dozens of viral species and strains, and several hundred viral ORFs. Built by academic labs to serve the scientific community, this reference collection is meant to facilitate material exchange and functional genomic analysis of viral infections. In this database built by scientists from Modul-Bio, you will find all informations relative to viral ORFs.

Access

A [web-access](#) to the ViralORFeome database database

Design Primers

If you would like to [design primers](#) for an unknown sequence (users with login only).

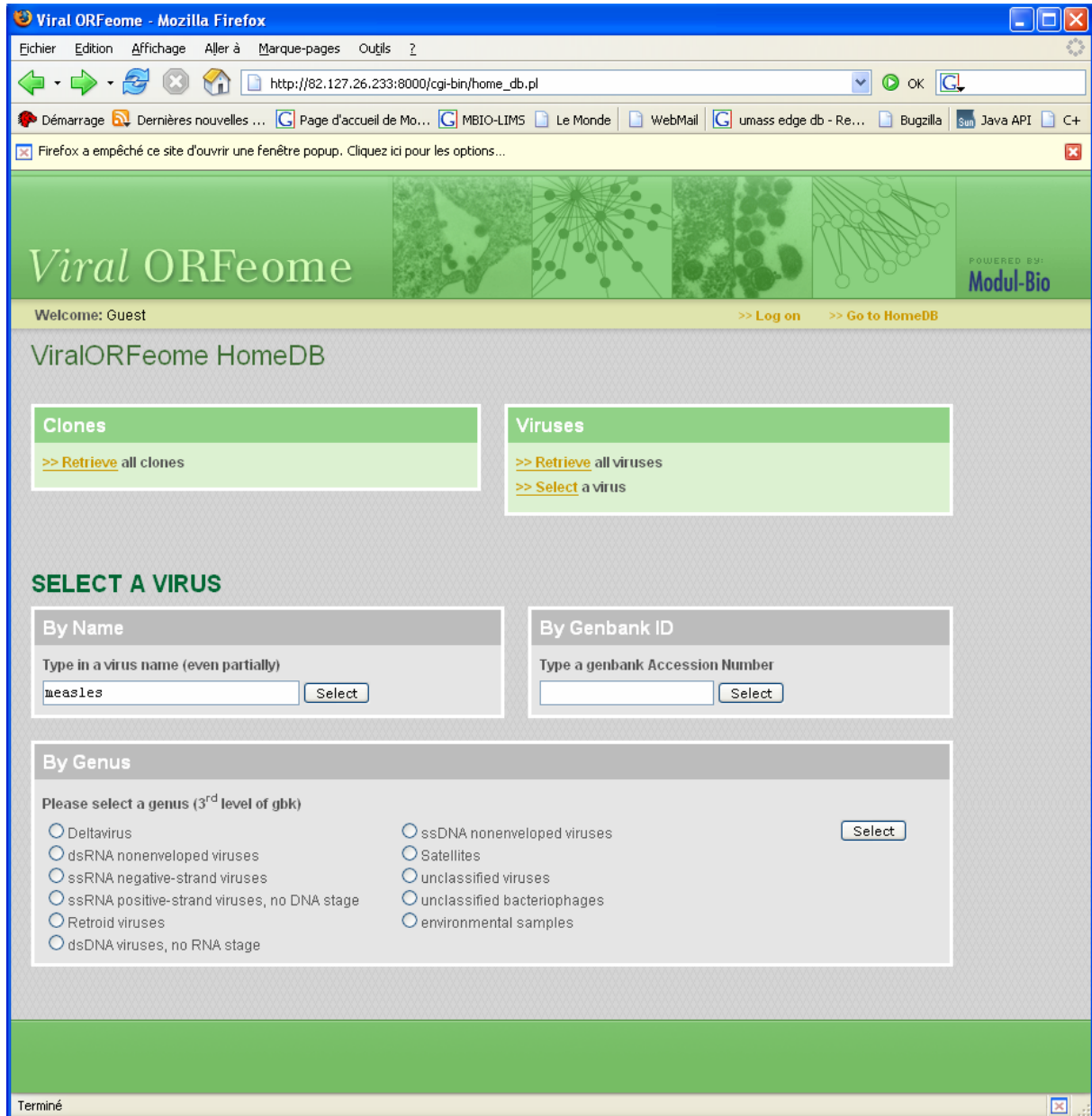
Contacts

Pasteur Institute Pierre-Olivier Vidalain vidalain@pasteur.fr Frédéric Tangy ftangy@pasteur.fr Yves Jacob yjacob@pasteur.fr	Modul-Bio Guillaume Achaz g.achaz@modul-bio.com Philippe Vaglio p.vaglio@modul-bio.com
IFR-128 BioSciences Vincent Lotteau lotteau@cervi-lyon.inserm.fr Chantal Rabourdin-Combe rabourdin@cervi-lyon.inserm.fr	



Terminé

From the main interface, retrieve all clones, all viruses or select a particular virus matching specific information



Viral ORFeome - Mozilla Firefox

http://82.127.26.233:8000/cgi-bin/home_db.pl

Welcome: Guest [>> Log on](#) [>> Go to HomeDB](#)

ViralORFeome HomeDB

Clones
[>> Retrieve all clones](#)

Viruses
[>> Retrieve all viruses](#)
[>> Select a virus](#)

SELECT A VIRUS

By Name
 Type in a virus name (even partially)

By Genbank ID
 Type a genbank Accession Number


By Genus
 Please select a genus (3rd level of gbk)

Deltavirus
 dsRNA nonenveloped viruses
 ssRNA negative-strand viruses
 ssRNA positive-strand viruses, no DNA stage
 Retroid viruses
 dsDNA viruses, no RNA stage

ssDNA nonenveloped viruses
 Satellites
 unclassified viruses
 unclassified bacteriophages
 environmental samples

Terminé

Measles virus search results



Viral ORFeome - Mozilla Firefox

http://82.127.26.233:8000/cgi-bin/description_virus.pl?virus_id=605

Viral ORFeome

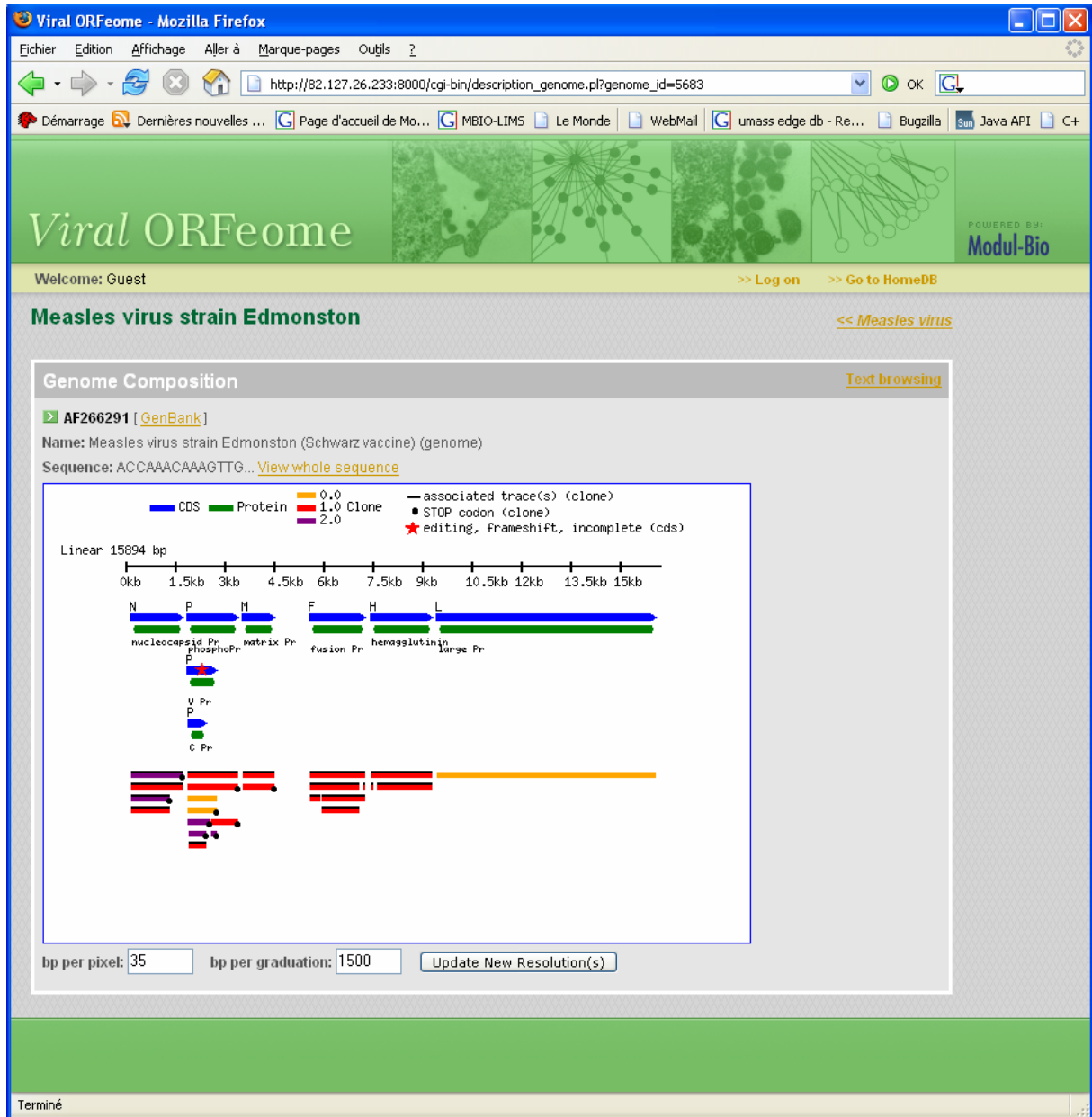
Welcome: Guest [Log on](#) [Go to HomeDB](#)

Measles virus

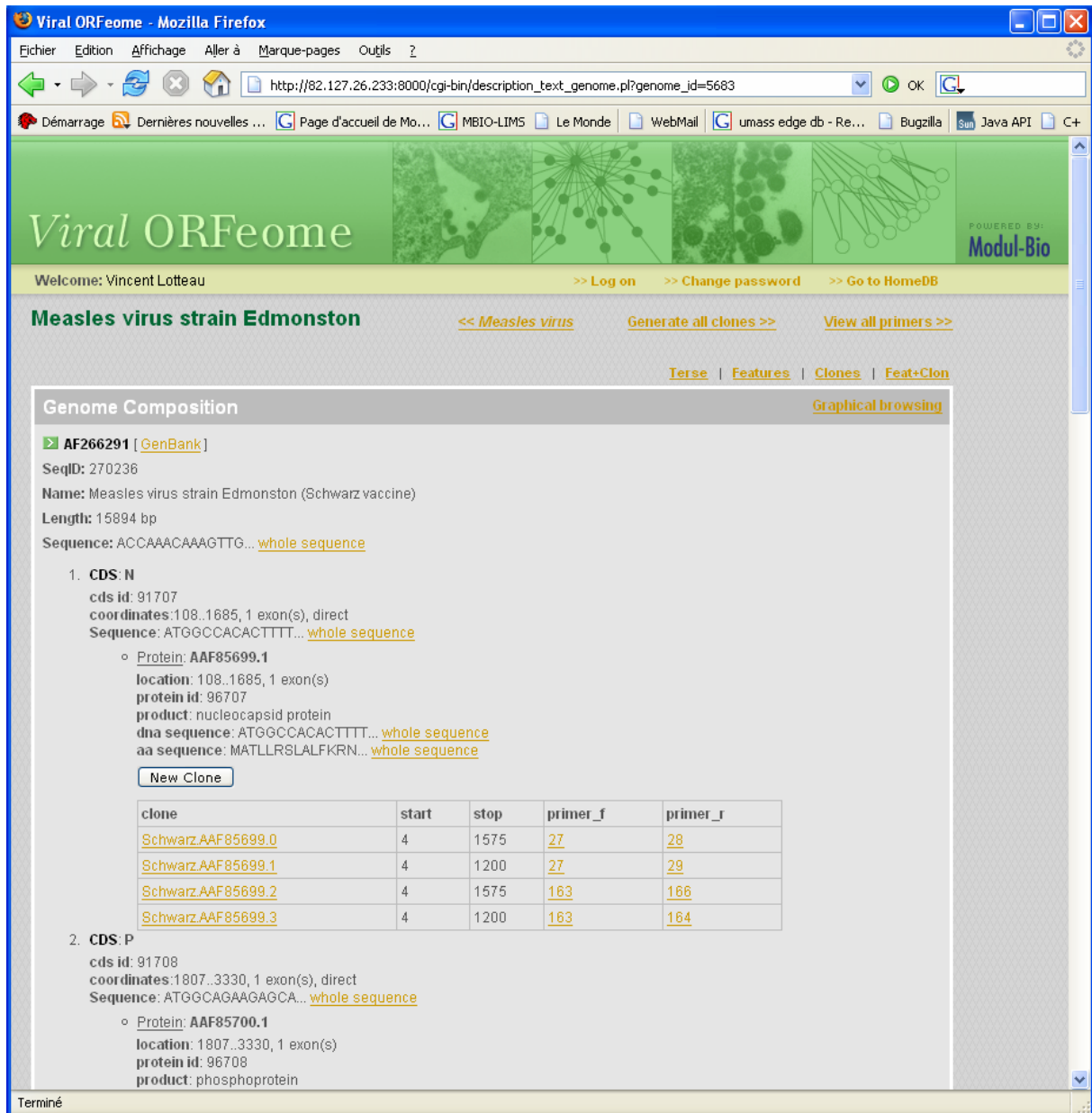
Genome Name	#segments	Comments
Measles virus	1	strain: Ichinose-B95a ; isolate: MEAL4AC ;
Measles virus strain Leningrad-4	1	strain: Leningrad-4; L-4 ;
Measles virus strain Edmonston-Zagreb working seed	1	misc: working seed ; isolate: EZD24 2/99 ;
Measles virus strain Edmonston-Zagreb master seed	1	misc: master seed ; isolate: EZD22 ;
Measles virus strain Edmonston (Schwarz vaccine)	1	strain: Measles virus strain Edmonston (Schwarz vaccine) ;
Measles virus strain Edmonston (Zagreb vaccine)	1	strain: Measles virus strain Edmonston (Zagreb vaccine) ;
Measles virus strain Edmonston (Rubeovax vaccine)	1	strain: Measles virus strain Edmonston (Rubeovax ;
Measles virus strain Edmonston	1	strain: Measles virus strain Edmonston ; misc: wild-type strain ;
Measles virus strain Edmonston (Moraten vaccine)	1	strain: Measles virus strain Edmonston (Moraten vaccine) ; strain: Measles virus strain Edmonston (AIK-C vaccine) ;
Measles virus strain Edmonston (AIK-C vaccine)	1	n/a
Measles virus (strain Edmonston)	1	strain: Edmonston ;

Terminé

Genome composition for measles virus strain Edmonston graphical display



Genome composition for measles virus strain Edmonston Text browsing display



Viral ORFeome - Mozilla Firefox

http://82.127.26.233:8000/cgi-bin/description_text_genome.pl?genome_id=5683

Viral ORFeome POWERED BY: Modul-Bio

Welcome: Vincent Lotteau [Log on](#) [Change password](#) [Go to HomeDB](#)

Measles virus strain Edmonston [Measles virus](#) [Generate all clones](#) [View all primers](#)

[Terse](#) | [Features](#) | [Clones](#) | [Feat+Clon](#)

Genome Composition [Graphical browsing](#)

➤ **AF266291** [[GenBank](#)]

SeqID: 270236
 Name: Measles virus strain Edmonston (Schwarz vaccine)
 Length: 15894 bp
 Sequence: ACCAAACAAGTTG... [whole sequence](#)

1. **CDS: N**

cds id: 91707
 coordinates: 108..1685, 1 exon(s), direct
 Sequence: ATGGCCACACTTT... [whole sequence](#)

- Protein: **AAF85699.1**
 location: 108..1685, 1 exon(s)
 protein id: 96707
 product: nucleocapsid protein
 dna sequence: ATGGCCACACTTT... [whole sequence](#)
 aa sequence: MATLLRSLALFKRN... [whole sequence](#)

clone	start	stop	primer_f	primer_r
Schwarz.AAF85699.0	4	1575	27	28
Schwarz.AAF85699.1	4	1200	27	29
Schwarz.AAF85699.2	4	1575	163	166
Schwarz.AAF85699.3	4	1200	163	164

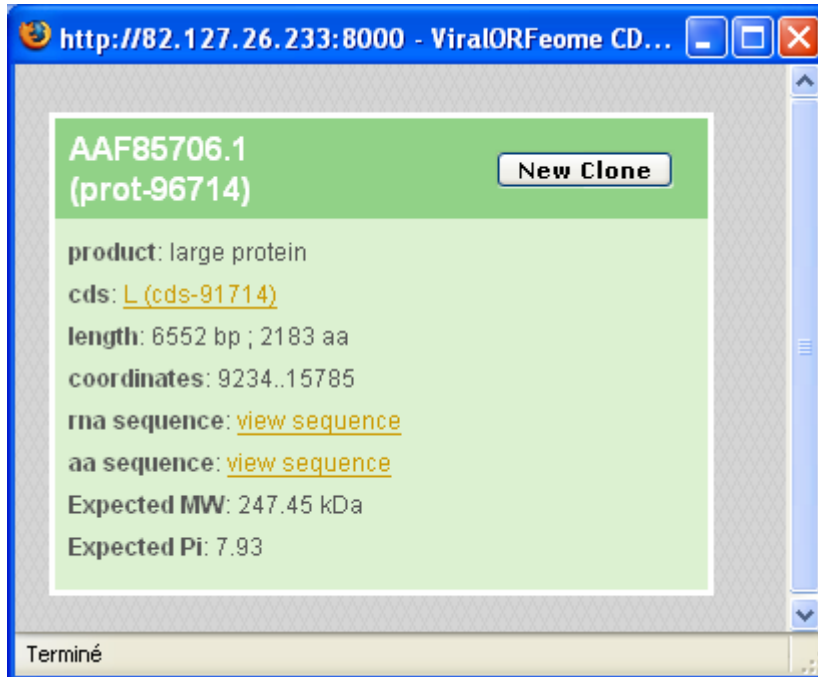
2. **CDS: P**

cds id: 91708
 coordinates: 1807..3330, 1 exon(s), direct
 Sequence: ATGGCAGAAAGAGCA... [whole sequence](#)

- Protein: **AAF85700.1**
 location: 1807..3330, 1 exon(s)
 protein id: 96708
 product: phosphoprotein

Terminé

Additional information on protein AAF85706.1



AAF85706.1
(prot-96714)

product: large protein

cds: [L \(cds-91714\)](#)

length: 6552 bp ; 2183 aa

coordinates: 9234..15785

rna sequence: [view sequence](#)

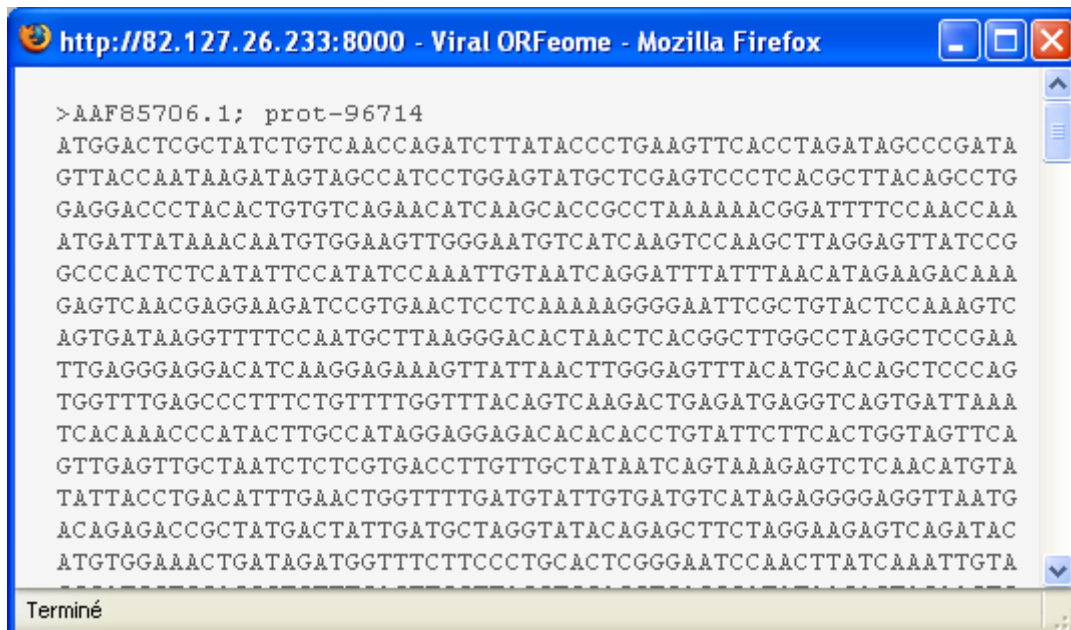
aa sequence: [view sequence](#)

Expected MW: 247.45 kDa

Expected Pi: 7.93

Terminé

Sequence information on AAF85706.1



```

>AAF85706.1; prot-96714
ATGGACTCGCTATCTGTCAACCAGATCTTATACCCTGAAAGTTCACCTAGATAGCCCGATA
GTTACCAATAAAGATAGTAGCCATCCTGGAGTATGCTCGAGTCCCTCACGCTTACAGCCTG
GAGGACCCTACACTGTGTCAGAACATCAAGCACCGCCTAAAAAACGGATTTTCCAACCAA
ATGATTATAAAACAATGTGGAAAGTTGGGAATGTCATCAAGTCCAAGCTTAGGAGTTATCCG
GCCCACTCTCATATTCCATATCCAAAATTGTAATCAGGATTTATTTAACATAGAAAGACAAA
GAGTCAACGAGGAAAGATCCGTGAACTCCTCAAAAAGGGGAATTCGCTGTACTCCAAAAGTC
AGTGATAAAGTTTTCCAATGCTTAAAGGGACACTAACTCACGGCTTGGCCTAGGCTCCGAA
TTGAGGGAGGACATCAAGGAGAAAAGTTATTAACCTGGGAGTTTACATGCACAGCTCCCAG
TGGTTTGAGCCCTTTCTGTTTTGGTTTACAGTCAAAGACTGAGATGAGGTCAGTGATTA
TCACAAAACCCATACTTGCCATAGGAGGAGACACACACCTGTATTCTTCACTGGTAGTTCA
GTTGAGTTGCTAAATCTCTCGTGACCTTGTGCTATAATCAGTAAAAGAGTCTCAACATGTA
TATTACCTGACATTTGAACTGGTTTTGATGTATTGTGATGTCATAGAGGGGAGGTTAATG
ACAGAGACCGCTATGACTATTGATGCTAGGTATACAGAGCTTCTAGGAAAGATCAGATAC
ATGTGGAAAAGCTGATAGATGGTTTTCTTCCCTGCACCTCGGGAATCCAACCTTATCAAATTGTA
    
```

Terminé

The Viral ORFeome database has a restricted access for authorized scientists working on this project. Once logged, they have access to many features such as :

- generating clones
- generating primers
- viewing sequences
- alignment tools
- protein interaction manager
- and other administration tools



http://82.127.26.233:8000 - ViralORFeome Login - Mo...

Viral ORFeome

LOGIN

Identify yourself

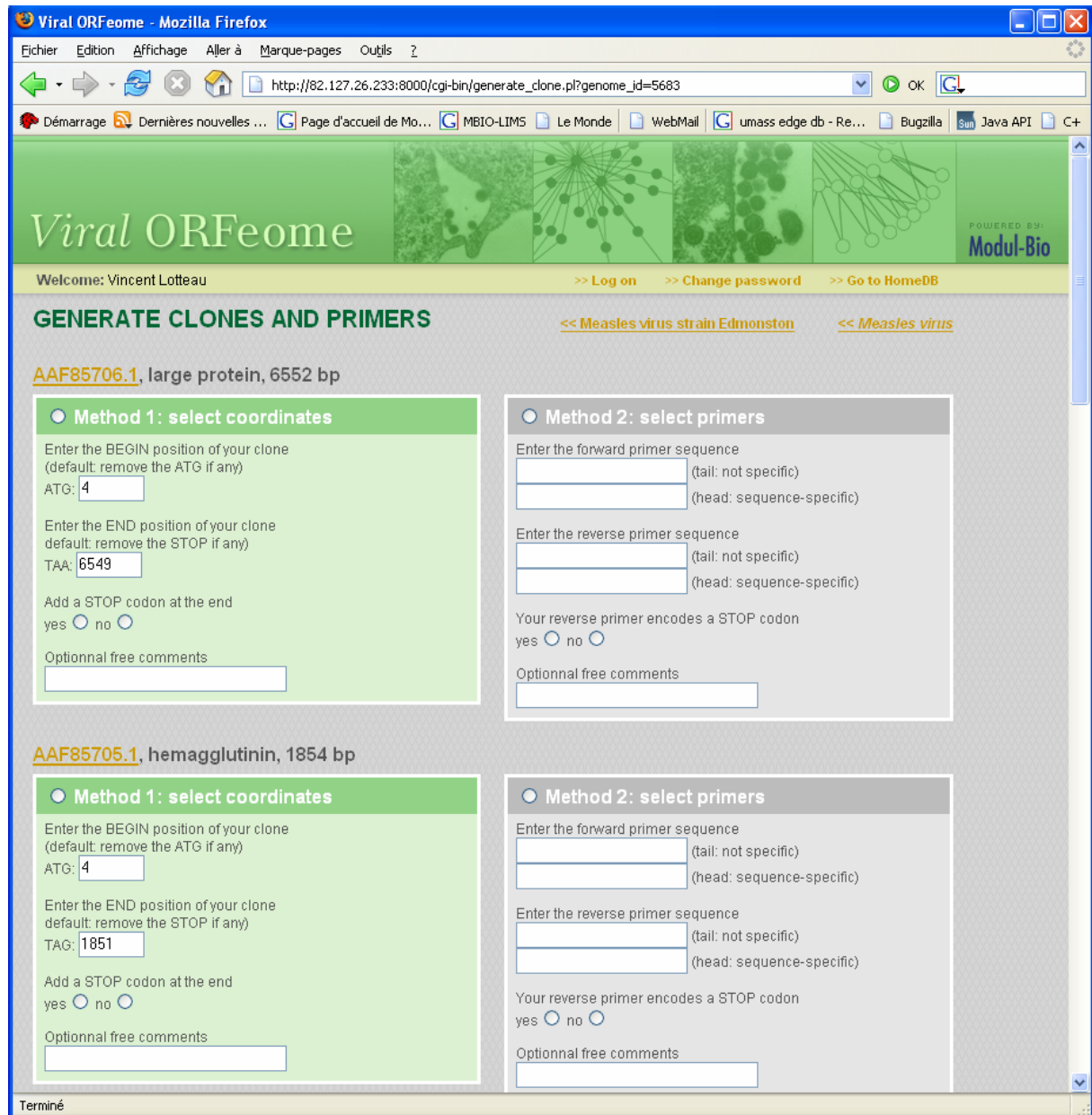
Username

Password

If you do not have any login, log as 'guest' (no password required)

Terminé

Generate clone and primers



Viral ORFeome - Mozilla Firefox
 http://82.127.26.233:8000/cgi-bin/generate_clone.pl?genome_id=5683

Welcome: Vincent Lotteau >> Log on >> Change password >> Go to HomeDB

GENERATE CLONES AND PRIMERS

<< [Measles virus strain Edmonston](#) << [Measles virus](#)

AAF85706.1, large protein, 6552 bp

Method 1: select coordinates

Enter the BEGIN position of your clone
(default: remove the ATG if any)
ATG:

Enter the END position of your clone
default: remove the STOP if any)
TAA:

Add a STOP codon at the end
yes no

Optionnal free comments

Method 2: select primers

Enter the forward primer sequence
 (tail: not specific)
 (head: sequence-specific)

Enter the reverse primer sequence
 (tail: not specific)
 (head: sequence-specific)

Your reverse primer encodes a STOP codon
yes no

Optionnal free comments

AAF85705.1, hemagglutinin, 1854 bp

Method 1: select coordinates

Enter the BEGIN position of your clone
(default: remove the ATG if any)
ATG:

Enter the END position of your clone
default: remove the STOP if any)
TAG:

Add a STOP codon at the end
yes no

Optionnal free comments

Method 2: select primers

Enter the forward primer sequence
 (tail: not specific)
 (head: sequence-specific)

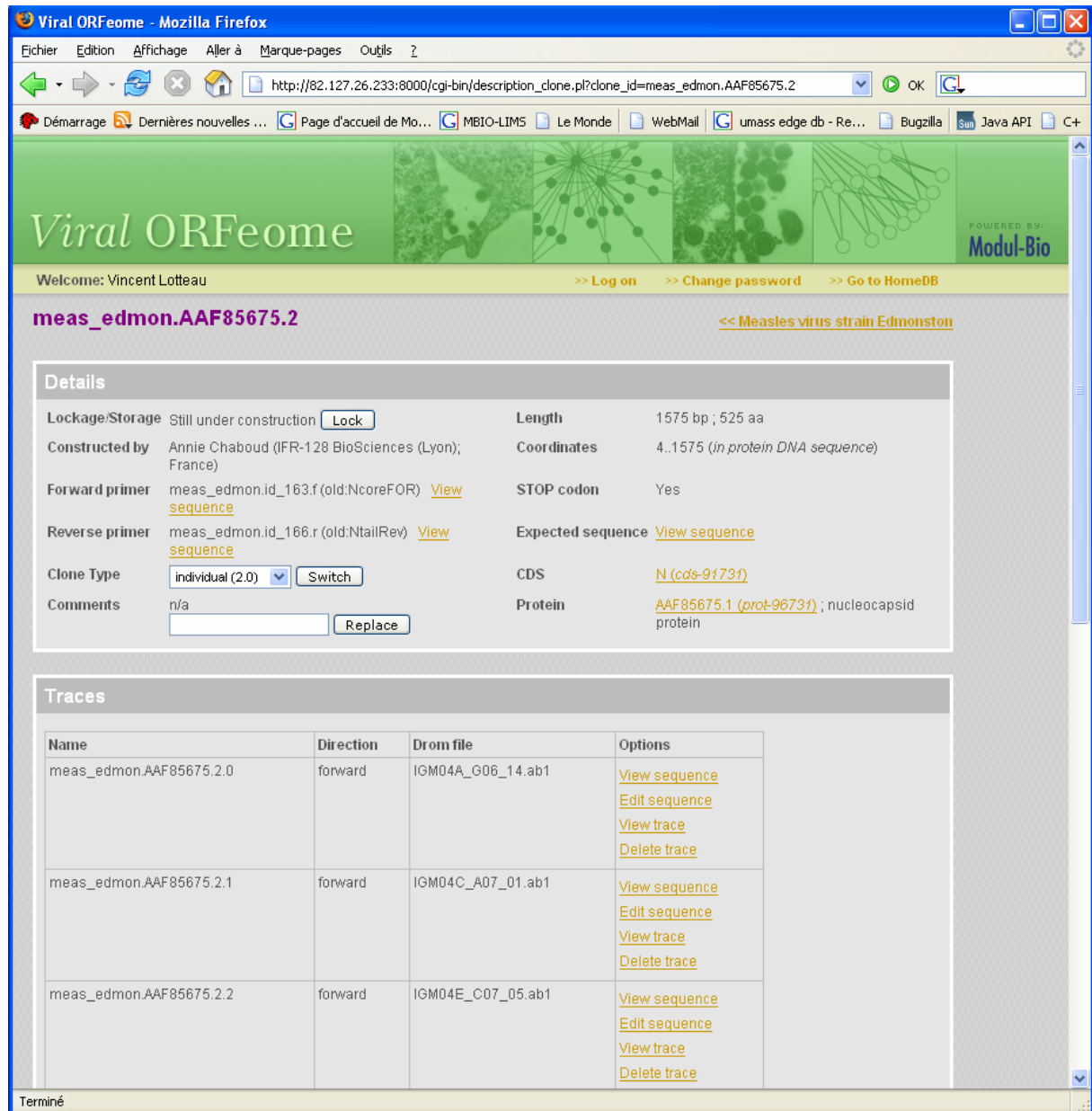
Enter the reverse primer sequence
 (tail: not specific)
 (head: sequence-specific)

Your reverse primer encodes a STOP codon
yes no

Optionnal free comments

Terminé

Detail information for a clone



Viral ORFeome - Mozilla Firefox

http://82.127.26.233:8000/cgi-bin/description_clone.pl?clone_id=meas_edmon.AAF85675.2

Welcome: Vincent Lotteau >> Log on >> Change password >> Go to HomeDB

meas_edmon.AAF85675.2 << Measles virus strain Edmonston

Details

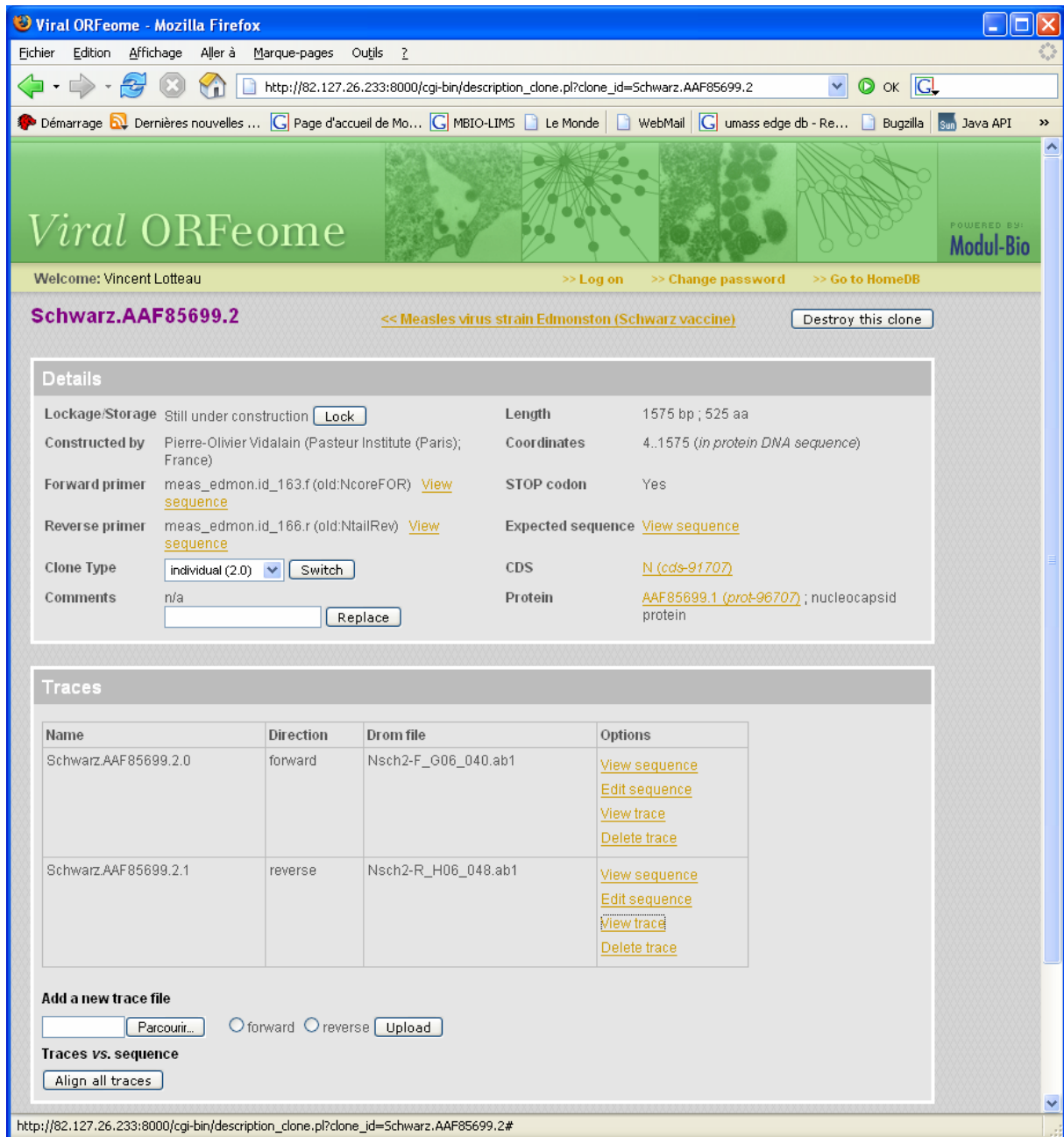
Lockage/Storage	Still under construction <input type="button" value="Lock"/>	Length	1575 bp ; 525 aa
Constructed by	Annie Chaboud (IFR-128 BioSciences (Lyon); France)	Coordinates	4..1575 (in protein DNA sequence)
Forward primer	meas_edmon.id_163.f (old:NcoreFOR) View sequence	STOP codon	Yes
Reverse primer	meas_edmon.id_166.r (old:NtailRev) View sequence	Expected sequence	View sequence
Clone Type	<input type="button" value="individual (2.0)"/> <input type="button" value="Switch"/>	CDS	N (cds-91731)
Comments	n/a <input type="text"/> <input type="button" value="Replace"/>	Protein	AAF85675.1 (prot-96731) ; nucleocapsid protein

Traces

Name	Direction	Drom file	Options
meas_edmon.AAF85675.2.0	forward	IGM04A_G06_14.ab1	View sequence Edit sequence View trace Delete trace
meas_edmon.AAF85675.2.1	forward	IGM04C_A07_01.ab1	View sequence Edit sequence View trace Delete trace
meas_edmon.AAF85675.2.2	forward	IGM04E_C07_05.ab1	View sequence Edit sequence View trace Delete trace

Terminé

Clone management



Viral ORFeome - Mozilla Firefox

http://82.127.26.233:8000/cgi-bin/description_clone.pl?clone_id=Schwarz.AAF85699.2

Viral ORFeome POWERED BY: Modul-Bio

Welcome: Vincent Lotteau >> Log on >> Change password >> Go to HomeDB

Schwarz.AAF85699.2 << Measles virus strain Edmonston (Schwarz vaccine) Destroy this clone

Details

Lockage/Storage	Still under construction <input type="button" value="Lock"/>	Length	1575 bp ; 525 aa
Constructed by	Pierre-Olivier Vidalain (Pasteur Institute (Paris); France)	Coordinates	4..1575 (in protein DNA sequence)
Forward primer	meas_edmon.id_163.f (old:NcoreFOR) View sequence	STOP codon	Yes
Reverse primer	meas_edmon.id_166.r (old:NtailRev) View sequence	Expected sequence	View sequence
Clone Type	individual (2.0) <input type="button" value="Switch"/>	CDS	N (cds-9f707)
Comments	n/a <input type="button" value="Replace"/>	Protein	AAF85699.1 (prot-96707) ; nucleocapsid protein

Traces

Name	Direction	Drom file	Options
Schwarz.AAF85699.2.0	forward	Nsch2-F_G06_040.ab1	View sequence Edit sequence View trace Delete trace
Schwarz.AAF85699.2.1	reverse	Nsch2-R_H06_048.ab1	View sequence Edit sequence View trace Delete trace

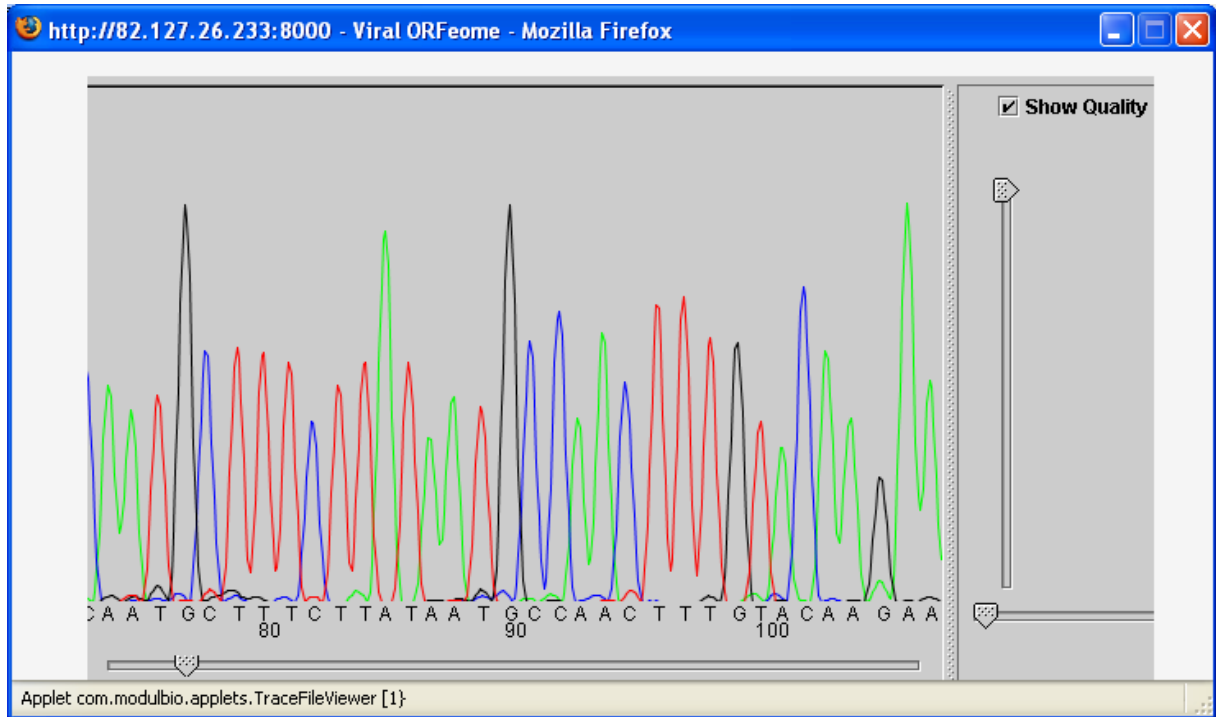
Add a new trace file

forward reverse

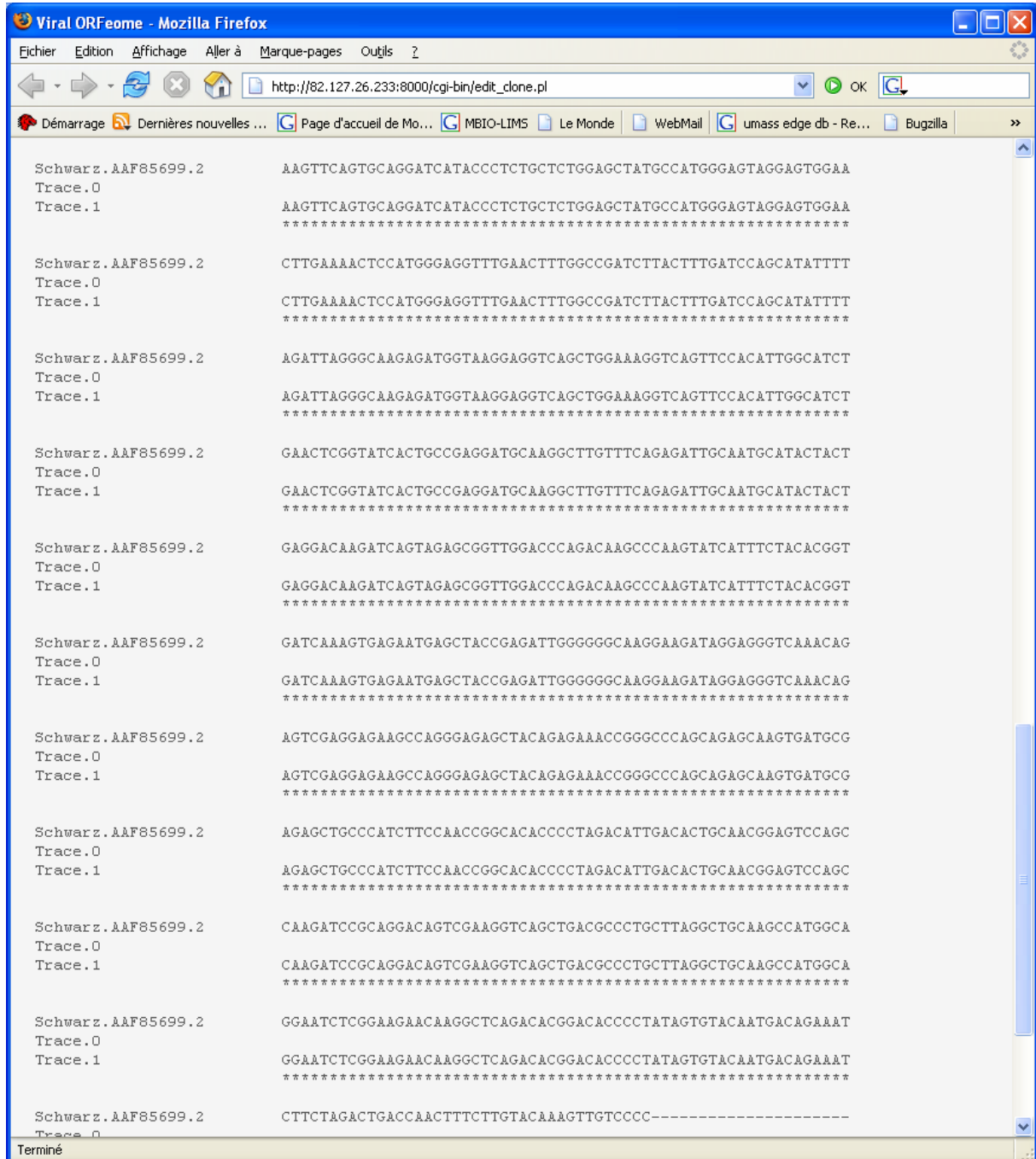
Traces vs. sequence

http://82.127.26.233:8000/cgi-bin/description_clone.pl?clone_id=Schwarz.AAF85699.2#

Sequence viewer



Alignment viewer



```

Schwarz. AAF85699.2      AAGTTCAGTGCAGGATCATACCCCTCTGCTCTGGAGCTATGCCATGGGAGTAGGAGTGGAA
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      CTTGAAAACCTCCATGGGAGGTTTGAACCTTGGCCGATCTTACTTTGATCCAGCATATTTT
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      AGATTAGGGCAAGAGATGGTAAGGAGGTCAGCTGGAAAAGGTCAGTCCACATTGGCATCT
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      GAACTCGGTATCACTGCCGAGGATGCAAGGCTTGTTTCAGAGATTGCAATGCATACTACT
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      GAGGACAAGATCAGTAGAGCGGTTGGACCCAGACAAGCCCAAGTATCATTCTACACGGT
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      GATCAAAGTGAGAATGAGCTACCGAGATTGGGGGGCAAGGAAGATAGGAGGGTCAAACAG
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      AGTCGAGGAGAAGCCAGGGAGAGCTACAGAGAAAACCGGGCCAGCAGAGCAAGTATGCG
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      AGAGCTGCCCATCTTCCAACCGGCACACCCTAGACATTGACACTGCAACGGAGTCCAGC
Trace.0
Trace.1
*****

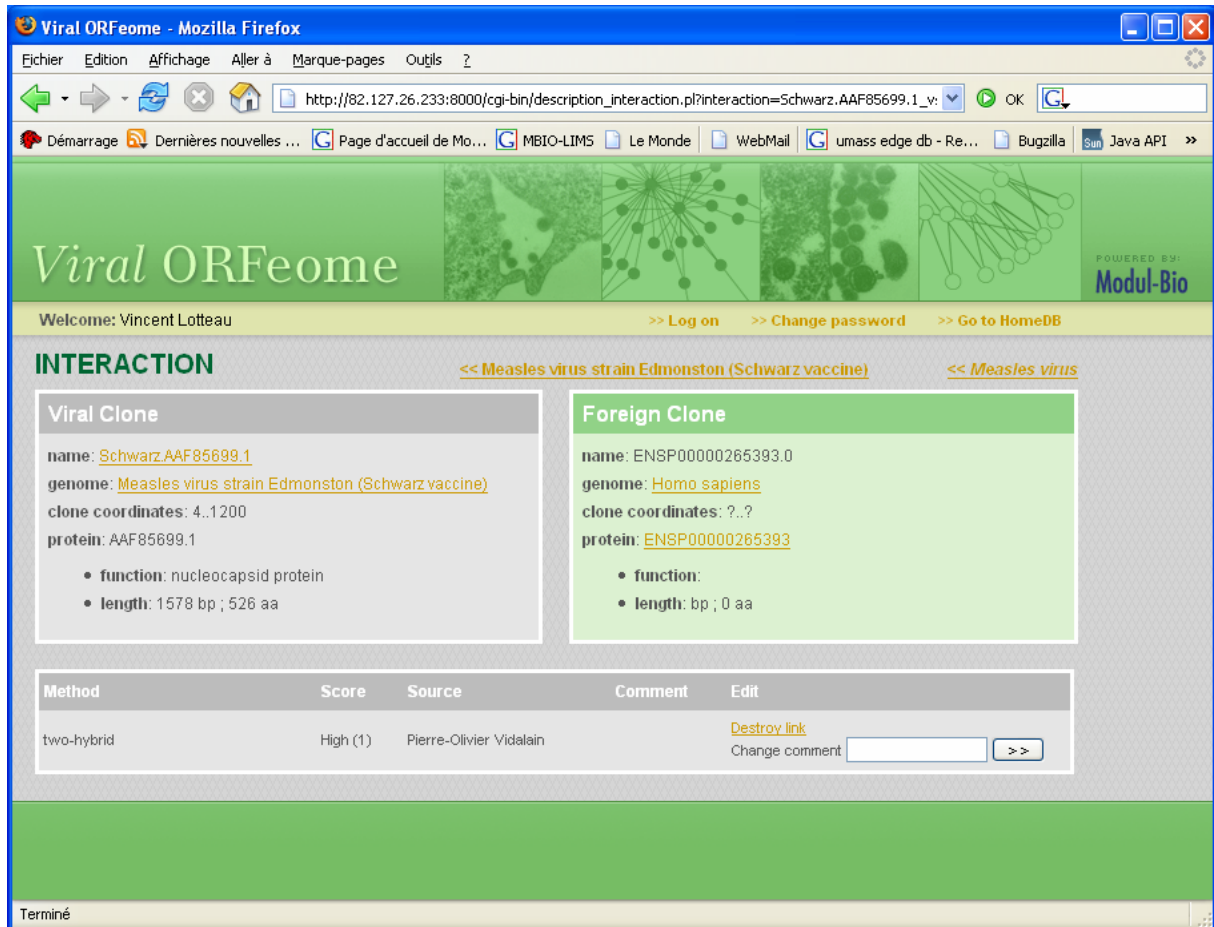
Schwarz. AAF85699.2      CAAGATCCGCAGGACAGTCGAAGGTCAGCTGACGCCCTGCTTAGGCTGCAAGCCATGGCA
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      GGAATCTCGGAAGAACAAGGCTCAGACACGGACACCCCTATAGTGTACAATGACAGAAAT
Trace.0
Trace.1
*****

Schwarz. AAF85699.2      CTTCTAGACTGCCAACTTCTTGTACAAAGTTGTCCCC-----
Trace.0
Trace.1
*****
    
```

Terminé

Protein interaction manager



Viral ORFeome

Welcome: Vincent Lotteau >> Log on >> Change password >> Go to HomeDB

INTERACTION << Measles virus strain Edmonston (Schwarz vaccine) << Measles virus

Viral Clone

name: [Schwarz.AAF85699.1](#)

genome: [Measles virus strain Edmonston \(Schwarz vaccine\)](#)

clone coordinates: 4..1200

protein: AAF85699.1

- function:** nucleocapsid protein
- length:** 1578 bp ; 526 aa

Foreign Clone

name: ENSP00000265393.0

genome: [Homo sapiens](#)

clone coordinates: ?..?

protein: [ENSP00000265393](#)

- function:**
- length:** bp ; 0 aa

Method	Score	Source	Comment	Edit
two-hybrid	High (1)	Pierre-Olivier Vidalain		Destroy link Change comment <input type="text"/> <input type="button" value="➤"/>

Terminé

Contact information :

Modul-Bio SAS

Email : info@modul-bio.com

<http://www.modul-bio.com>

Tel : 33 (0)4 91 22 33 05

Fax : 33 (0)4 91 22 36 11

232 Boulevard Sainte Marguerite
13 273 MARSEILLE Cedex 9
FRANCE