ACEDB (Ver.1.2)

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. 7 17n 23

About "ACEDB: Japanese Guide(Ver.1.2)"

Authorized translation from English language original documents listed below(1-4) written by Dr. Jean Thierry-Mieg and Dr. Richard Durbin. I thank Dr. Jean Thierry-Mieg and Dr. Richard Durbin for permission of their translation into Japanese.

(1)acedb -- A C. elegans Database: I. Users' Guide (on-line).
by Richard Durbin and Jean Thierry-Mieg (1991-)
(2)acedb -- A C. elegans Database: II. Installation Guide (on-line).
by Richard Durbin and Jean Thierry-Mieg (1991-)
(3)Syntactic Definitions for the ACEDB Data Base Manager (on-line).
by Jean Thierry-Mieg and Richard Durbin (1992)
(4)user_manual.moc file in document files (on-line).

Original documents are available at several anonymous ftp sites written in this document, and ACEDB documentation server has been set up under WWW at nalusda.gov.

A C E D B O Dr. Jean Thierry Mieg(CNRS,FR) Dr. Richard Durbin (MRC,UK) K h C F 1990
h n . F 9 9 F 9 9 F N C n C T , M F 9 K J N
a N D r F F e J 9 (1-4) r u b N K C . N a K K J N n . K J 9 r
C F D - 4 U 9 C T K C T N C K J N MK h T M1 , c ,
F b U r i M 9 K F K , N C n N C , M9 b N 9
K J ACEDB 9 9 F J CnK 4 N J d MK K D F a F K ,
9 0 FbMF CnMN ACEDB2_0 K 4 E F 9 , AAtDB J N ACEDB U
b 2 9MK J 9M(F 9 9 9 U 4uK T K F 9 N ftp.nec.co.jp
i T F 2 N C d F 9 K h j a K e Ey, y K 0 J j
9 , F1MKMA n - N n F F 2 U BNN p J acedb K e 9 0 r 2 9MK
F 2

F K N C. elegans f T S l K r C F f T A N j CnN N
p Jsr 49Eyb 2 9MK F 2

Abstract

s A r a
r A A s r r
t A r
r a a
ACEDB
C
D D B D D EA A E
D
(1)ACEDB (2)ACEDB (3)ACEDB (4)ACEDB
C

1

1

1

1

1

1

ACEDB

D

2 ACEDB D

2.1 ACEDB

ACEDB A Caenorhabditis elegans Database
Cn b B D l ACEDB i C
s r l i s g s r B
s e l C b s o d C
ACEDB Richard Durbin R C B s C h Jean Thierry-Mieg
JC R b s h i a i l E - b J
r M C l h C l s r M C
l l r MM o i C D
l g J J i B - l J
- c C e C g s s J d g o l J r D M
M a s E E J s d EAR l J s
J l i D A J B l D A i D A l
A B J"b " l l C b J B - "
E " ME - R l J r i " n l
r B J b r D d " a s r
b C - Ey s i l

2.2 ACEDB B

2

AAnDB	Aspergillus nidulans
AAtDB	Arabidopsis thaliana
AboutDB	ACEDB itself
ACeDB	Caenorhabditis elegans
AceMAP	Homo Sapiens
Ace11	Homo Sapiens chromosome 11
AGsDB	Neurospora crassa
ChlamyDB	Chlamydomonas
CottonDB	Gossypium hirsutum (cotton)
EcoDB	E. coli
FlyBase	Drosophila melanogaster
Flydb	Drosophila melanogaster
GrainGenes	Wheat, barley, oats, relatives
human.c17	Homo Sapiens chromosome 17
LIGM-DB	Veronique Giudicelli
Maize	Zea mays L. ssp. mays
MycDB	Mycobacterium
PomBase	Schizosaccharomyces pombe
RiceGenes	Rice (O. sative)
SolGenes	Coverage: Solanaceae - tomato, potato, pepper(eventually)
SoyBase	Soybeans
Cybase	Homo Sapiens
TreeGenes	Forest trees, Pinus taeda
21Bdb	Homo sapiens
22ace	Homo sapiens chromosome 22
VoxPop	Populus spp.
Xace	Homo sapiens chromosome X

3 ACEDB

3.1

3.1.1

1. :object

ACEDB ” ” 1 D ” j ” 1 ” ” . o b

2. :class

” ” 1 ” j ” Ver.2.0(UPDATE2-14) 0 2 (DjA l

`Map`	
`Author`	
`Gene_Class`	`A ced,emb,unc`
`Allele`	`l`
`2_point_data`	`2 s C s G`
`Method`	`i a`
`Cell`	`h`
`Rearrangement`	`A g G`
`Genome_Seq`	`2 _ C s`
`Clone`	`A m s cosmid,YAC,cDNA`
`Journal`	`o`
`Clone_Grid`	`s`
`Strain`	`l s`
`Multi_pt_data`	`s C s G`
`KeySet`	`_ D l C J2MB paper cosmid y K`
`Gene`	`d A R`
`Sequence`	`s`
`Paper`	`J Cn i y`
`Restriction`	`B AG`
`Laboratory`	
`Df_Dup_data`	`D f D u p y N B G`
`Model`	
`Other_Locus`	`e N i K B J o y`
`cDNA_Sequence`	`cDNA m G N G`
`Tc_Insertion`	`CN Tc A G`

3. - :key

D V ”- ” k l k c (P ” Author V ”Sano T” - r D C 3 - 0l ” k

4. 0 :tag

Author
r

3.1.2

3 3
1

2 1

3.1.3 ACEDB

ACEDB D ACEDB
ACEDB r C

ACEDB C D r D

1. ” ” E C

   C r B D C
   r A Br C C ” C
   ACEDB B D r
   E C ” ( ) ” A C o ” ”)
   ” (u r A Br 1 ” C u
   E

2. ” A ” E C

   A ” 1 D r ” B
   r ” C (

   A h A E C ” C C
   r A A r A Br ” ” C D
   t A

3. C

   ACEDB C ”class” C1 1 C 3 3 C
   u B r (c (. r a C a h l
   D o a ” ”ready” r (

4. ACEDB s a e

`Quit`	`ACEDB`
`Help`	
`Clean Up`	`B D`
`Program Status`	`m i p s m i Ver. Ver. E`
`Add update file`	`update U r r D C`

`Query`
`Query by Examples` l s
`Tablemaker` k
`DNA analysis` D N A r m i

b k i ACEDB A "setenv ACEDB_SU" "
e D C

`Add/Alias/Rename` / N n n N Q
N
`Read Ace Files` Ace k r F D
`Align Maps` D e N F n
`Read Models` N Q m
`Session Control` C g s N N Q u
`Dump` F C N A r s
`Write Access` D r MW k Q MQ

5. C s

C t C C " ACEDB 5 s " " s C s " " ACEDB s " s " E C D 5 S " A B s " " C 5 C 5 " " B " A " s

ACEDB s " s " s A s B E 5 " A " s " s A B 5 " 5 " " A EAC E s 5 " s s C e E s 5 " C e A s C " " C e "show as text" A B h w B A w B EAC 5 w B a " "show as text" a e A B "

" C s s a s C s B. C C e C C "Selected Keyset" 5 l A B 5 l C C K C U A" s s s C 5 l s a K e l " A B 5 l B 5 l

6. C s a K e

`Quit` E s r D k
`Help` k W
`Add keys` C H i r C n D C

Copy	C C
Save	C
AND	C A C N AND
OR	C A C N AND/OR
MINUS	C N A C N
XOR	C O A C N N
Ace Dump	C C N X O
Name Dump	C C N
Sequence Dump	U Mn v A A / I M
Show as Text	N / I locus, rearrangement, sequence, chromosome, clone A r C I r t N X Mx C r r v A A r / , I,M
Biblio	/ N p s I C r r v A A Br / , I,M

3.2

3 rearrangement r m m r

1.

ACEDB C B r A m rearrangement r C r EAC

2. EAC 1 -

Locator and Marker Loci	m O N C N D u I l k u O w BNA BN N O w BNN A k It, r
Rearrangements	C O deficiency rearrangements s O duplication rearrangements r l N A Br rearrangement N p s , i l k .
Contigs	O s h D l M s
Loci without mapping data	s N L C k O M CO e q l C T s O
Scale	C L O s A b k , s
2_point_data and Multipoint data	GMap data s , M l k k
Loci	2 w k b N O / m s _ l , A Br l k p s , i l k

3. C e r

4.

rearrangement 4 r

m r a m r

e t a r 4 rearrangement

m r 4 4 m 4 m 4

m r

. r

rearrangement r e t a

g r rearrangement r m 4 m

4

5.

4 5 m r

m r

r r e 5 t

r g r e m 5

m r . 5 5

6. e t

`Columns C l`

`l C C o`

`Whole h C W`

`Zoom In/Out I h C W`

`decreases/ I l CO O O`

`increases`

`Highlight r C H C H rearrangement /`

`GMap Data / D l C H rearrangement C s G`

7. a e

`Quit C W`

`Help W`

`Print Screen I l s I W s H`

`Print Whole`

Map
Preserve M
Recalculate rearrangement l

Save Map n r
Hide Header s g s r e t l
Physical
Chromosome
Map e M C H u r
H s cDNA
H r A r D C H i s H l
H H l

d A C MM

Physical
Chromosome
Map Buttons

Whole BNA NNh
Zoom In/
Out I NNh N s H
Clear C H i s H l N C n

Physical
Chromosome
Menu options

Quit C W r D
Help W
Print s I I N W s H
Preserve C W n M C W r
B
Recalculate M CO DIC N C W W
Highlight
Selected
Objects A Br C H C N C W e N C H r / D
Add
Selected
Objects A Br C H C N C W e N M C W
C H r s H I
Subtract
Selected

Objects

Full Genome
Distribution r
Change
Symbol
Size C C
Change
Bump
Sloppiness B i s C l

3.3

1\. ACEDB D C D C

2\. C C D D

Locator	u G CO C s r G e t l F t r
Text	C CmL j C G i p s r F i l
Genetic Map bar	CO F a L C l j C G z p s F i l
Pairs of small vertical lines	YAC G i l s F l L B g O T L
Sequence Boxes	h O s h r s r O i O m s L C O i l A Br FCD C l
Cosmids cDNAs and YACs	YAC O e G l cDNA O C C e G C l F G l N m s b z p s G j r O a l F B N B YAC N A B N b N O j C a e G b N

Note: Lpu O D N m s i NY N M i l

3.

3 .

4.

Quit
Help
Print r H
Preserve n
Redraw
Recalculate r
Show all
Remarks v
Show
Selected
Objects r H b e m s r k
Highlight
Selected
Objects r H b e m s r
Unhighlight/
Revert r H b e d rearrangement i / r
Show All
Buried
Clones A P O / m s r
To Genetic
Map C d / m s / l k H g s G
C d / m s d A CO l k
Sequence / l k / m s s
Set Zoom Q
Set
Display
Depths G G MQ i l k t r C Dj k H P YAC r B
/ r / / l P YAC t r Bg / l P h

3.4

3 3 3

1.

ACEDB "clone_grid" r A "

2.

. C A C l

l r 1 E C " C " Gridded clone E C A C A r G A C r l " A C d g e C Gridded clone r A C C i A C r A l e " l D l

c D A C D 1 l " Probe E C c D A A r b r A Br C C e " c D A r A P" l C " l P E C D l

C C 2 D n b "

C b C r C C E C r G

b G r C o g r G

3. C e

```
Quit, Help, Print, Preserve  as normal

Centre <-> Surround   >            < <    s Q   < s H H S     a
                    P C    i   s       Q   < s r   <

Toggle name display      C        m < s         <     <       r g -
                    H   ,       s H

Toggle small display        <  <           <       <          r
                      >H  -

Set small sizes                  g o       a     >   <   d g r   C H

Display probe as tree - <   C H a   e <   "Show as text"r   h

Save data with probe    m <   H              < <   g s Q   < s r
                        -     v D , ,

Set cluster range      < P < i C    m < s H   C H      m <     P
                        h      C         g s r          h D    C r
                      C H
```

`Stats on keyset`	k
`Change gridded clone`	s C r

3.5

ACEDB C C B
A B C A B
A B E EAC
"Reverse-Complement" s e
s r C s e A s

1. :columns

s s e 1 s r C e s B p
s r A Br C A s e - "

`Locator`	L C r k s r
`Clones`	s s L
`Up Genes`	U d i s s i e
`Restriction map`	r s G "Motif"r k " C L i C s g s l k
`Summary bar`	C r M i l k
`Scale`	s y r
`Down Genes`	g d R i s s
`Temp_gene`	genefinder r M k o s d R
`Finished`	s r a C s l k
`CDS Lines`	F CDS Coding Sequence) k e
`CDS Boxes`	CDS lines F MM k
`cDNAs`	u " G cDNA r
`Gene names`	d D s " N " d A D A _ d A R N L A

Assembly Tags	
3 Frame Translation	3 l
ORF's	e 3F l 3 s r
Coding Frame	d A R d l 3F s l r
ATG	G F ATG r
Coding Potential	l G s o 3 G b C r
Peptide Similarity	A BLASTX A F r A X
Gene Translation	A Brd A R L
DNA Similarity	DNA s BP BLASTN A F NN
Inverted Repeats	I G Ns
Tandem Repeats	s G T
User Segments	s L 3 O Dd L C G D A l 3 It m i G FCD' i l U r FI 'D A G l 3 I A X
Splices	Genefinder m i G B l i N I
Coords	DNA BP B I
DNA Sequence	DNA s X FCD' D l
Brief_Identifications	b m C A s A D F N R 3
Text Features	s BP F - EMBL - CmEy

2.

Origin O g r
r r
r

”Active zone”O ” A r O ” O
”Export Sequence” e g q ”
e t r E 2
” O” 2 A i

” 2 ” v t A r p

Genefinder e O Reverse-Complement e n G - ” Dr. Phil Green h Genefinder C r Ds s e G” ” - s G ” 2DG - t r

” s O A D r l g 2r

3. s e

`Quit, Help,`	
`Print Screen/Whole Map, Preserve`	`H`
`Recalculate`	`W`
`Clear DNA`	`Clear s H`
`EMBL dump`	`C. elegans s W m / H N H MQ`
`Hide header`	`W s H H r l a C r`
`Color exons`	`d EAR A Br A s H s H m s , NPH r i H l`
`Export translation`	`d EAR A Br FASTA C H Lu Ns D l`
`Export translations`	`/ F NNh N A s M A NNh r Lu P`
`Export Sequence`	`/ F NNh N DNA s r D L N q P`
`Statistics`	`N s BP A FCD N r P N W s H`

Read User
Segments "User segments" r

Analysis
window s DNA r r

3.6

3 ACEDB ”D
A ” ”
C D A B D
” D B ” ” C D A A C B
E
D C A B ” D
A A A A B ” B D A ”
E ” C A A C A ”
” Rebase s Restriction class B A r s
D s r b C s r s
l ” D s n ” l ” A B e l s C
D l
B s ”

Finger print
n N n i l HindIII H Sau3AI. H
l

Motif Key_Set
" F s d s H K A l
A U N H r FI_

Max mismatch
l " A U A H K K s
N A D M H _ A D t I H attgcc
atagcc K "Max mismatch" l e K H

Dump Sequence
UseKeySet H l F l " F H N A s
r FASTA U H q N " F s
s I N " F NNh r FASTA U H q

EMBL dump
" F s s N H K B EMBL
r U K q

`Splice Concensus`

`C s C s s s`
`5' 3' i 3 s s 5 s`
`5 1 5 3`

`Codon Usage`

`C s C 3 s`
`s 5 1 d 3 s i s`

`Sequence Lengths`

`C s i`

`Show gels`

`1`

`Motif Distribution`

`Clear`

`Dnacpt s r D Splice concensus d restrict buttons`
`M M`

3.7

ACEDB D D "Query by example" l " " m r x "Query" " l Query r " e Query by example D b

1. l E

   C r l r

   r l l l B l u a

   m C r " D Q l 1 D r " B b 1 C Q l l 1

   b r D l " A a D " l r B " D l

   b r D r D " A Br l C A a D l

   A Br l C

2.

   A r 1 l "Find Classname" ">?Classname" F

"Tagname" "
" ">Tagname"
" "
" " e
g "
g e "

```
|  OR      0  0
^  XOR      >  0  0
&  AND     0
!  NOT       D
```

N O ! & & N & ! D N !

NEXT " a N

HERE N H N E H N

COUNT O N N H N

"(" O "["H C g O H C

H N N O H

& | ^ < = ( ) [ ] { }!

N

1 >?Author (or FIND Author)
>ro ? (! = N N A !<
!

2 (a)
Paper
F D F ! N ? F D N !
(!A r ? !< F N ! N !< !
!

(b)
>Paper (or FOLLOW Paper)
2(a) F paper r ^ L r <(N F ! L r ^ paper
r <(!

3 >?Author s*|a*
<TL>N h F s ^ ? 0 a I a s P !<N r author F D !

4 >?Paper Journal=Nat* AND Year > 1987
Paper 9 N D 1 J Paper 9 N Journal Year N ?
>r7or 7 ? N Nat Journal 1987 8eN =P J* D 1

5 >?Locus myo* Clone
myo ? r D N Locus 9 Clone r 4 Locus 9
N = L >19 N Nc A = Y ? Clone C ? ? 4 9
? y N >r7oL57 5 1 N ? ? r D 9 N A4a s P
4 1

6 >?Author IS "Sulston JE"; >Paper; >Author
s I A 9 o ; N Nc s I N 7 L E 5 1 N >19 " John
Sulston Paper 6 C J C ? L> 1 D N s I

(1)Author 9 N Sulston JE r
(2) s I (1) N 7 2L 1 ? C A 9 A4 Paper 1 N >19
Sulston JE h A4 Paper 1
(3) 3 s I (2) N 7 2L 1 ? C A 9 A4 Author 1 3 N >19
Sulston JE h Paper P 9 A4 Author 1

7 >?Author COUNT Paper > 10
ACEDB N ? 10 h B? Paper 0?5 1 Author 9 5 1

8 >?Locus Map = X AND NEXT > 12
NEXT " " ? 0 N 1 B " 5 U I X 0 0 9 3 N Nc 0 gMap
? 0 X r 4 Locus 9 N r 8 9 5 gMap ? 0 N 5 U
I " 9 0 1 B " Position X 0 0 7 " Position 12 h Bg
N 8 5 1

9 >?Locus Map = X AND NEXT > 12 AND HERE < 19
Nc 8 5 i >r7or IU2C7 ? N HERE 3 s I 0 8= 8 5 1 U <
I J3 N >19g Position 5 U < I 2 D L N >r7or 8 (
Position 5 U < I N CM 12 h Bg 19 h > 5 N 8 5 1

L 9go ; a e <

Quit	8= N 3 s I Nsr J B89 * 7 g s H 6 =*N;
Help	X
Print	3 N s I N s H
Clear entries	8= N 3 s I i s N "

New
Keyset s
Query
by Example
Load
from File i N s i s r F
Save to
File N s N N
Search
Locally w
Send L F
Undo e K F N s N c s N u K La

s s a K e s K F

3. Query by Example

Query by Example l r 3

r r ”From:” ”
r F r

”Class:” C l ” F r 3 ” l
r r r s b ” s Class: s r
r l l 3 r C ”
l

F F r 3 ” ”
C s r r C ” r r F
r l b FC C FC o s r r ” E E
C Fb r o r C a
s r ” ” C a
r o F e ”Search Locally” s r L r 3

4 ACEDB

E UNIX X I N NI IBM Linux u B n N n N n i Ver.2.0 Ver.3.0 2 N M 3 N N B N M

N 3 n N 3 r 3 MMM 3 1994.10. 2-14 9 3 i N 9 9 I 4 - r i V 9 N 9 9 N I N 1 I M 3 - M r MMM N - 9 I r MMM9 3 - 3 N 9 gopher WWW (World Wide Web) r M N 4 1 gopher N l 9g weeds.mgh.harvard.edu B39 M - WWW N l 9g Mosaic i s URL=http://moulon.inra.fr/acedb/acedb.html I X B39 n N MMM - 3 3 i m N X s I g s =R 3 9

4.1 ACEDB

ACEDB 1994 / 1 n 2 D N l C. elegans Durbin n N h Ver.2.0 r = N B N A4 Mieg n N N Ver.3.0 r MMM9 2 3 I=(N 0 C g s 2.0 1993 / 12 n g s 3.0 1994 / 1 n 9 l

4.2 ACEDB

```
ACEDB                                                    D
 Unix and X11:
     Sun/SunOS 4.x
     Sun/Solaris
     DEC  DECstation3100, 5100 etc.
     DEC  Alpha/OSF-1
     Silicon Graphics Iris series
     PC 386/486 with Linux (free Unix)
```

3 l i 0 30 3 l G 0 5 l F Alliant, Hewlett-Packard, IBM R6000, NeXT, Convex C - s H C e HG, s p 5 l F k A s N E C HG M3 MxM D G G k

0 B - , NI/ N / G 0 X s H / N G i , I,M G k s H F 0 H / H s , H A 0u: , G - N G I,M G k

4.3 3 ACEDB 3

A C 3 anonymous-ftp h - 3 30 CV l = N 3 9 b b i s 0 l D 3 30 i 3 h 9 B

```
UNIX(X11)
ftp.genome.ad.jp (133.11.195.1) in db/ncbi/acedb
lirmm.lirmm.fr (193.49.104.10) in pub/acedb
cele.mrc-lmb.cam.ac.uk (131.111.84.1) in pub/acedb
ncbi.nlm.nih.gov (130.14.20.1) in repository/acedb
bioinformatics.weizmann.ac.il (132.76.55.12) in pub/databases/acedb

   - s    7 e
genome.lbl.gov(131.243.224.80) in pub/macace
cele.mrc-lmb.cam.ac.uk (131.111.84.1) in pub/acedb/macace

Linux
trog.mbb.sfu.ca (142.58.213.33) in pub/acedb

NEC-EWS4800
ftp.nec.co.jp (192.135.93.2) in pub/packages/acedb
```

i j - k

j C 7 g s Nc

```
ftp ftp.genome.ad.jp
login: anonymous
password: (your email address)
cd db/ncbi/acedb/ace2
binary
ls
get README
get NOTES
get INSTALL
get bin.sparc.2_0.tar.Z
quit
```

ftp s I R 2 N 2rO s N s r S f L anonymous N : o I O N EIR a I l r Ej l / j ace2 2 E Awb I r j Dj ls s I : L r N a I M m0 i I e a s Eyr get : O a README NOTES r I

4.4 ACEDB 4

E

C 4 D D doc.1_9.tar.Z b j

```
acedb -- A C. elegans Database: I. Users' Guide (online).
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```

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by Jean Thierry-Mieg and Richard Durbin (1992)

4.5

ACEDB B B E
C E D
C B
D D D C
B D

4.6 ACEDB D

EE bionet.software.acedb s r
EE a b s r A i E e e
a Aw biosci@daresbury.ac.uk subject
a k r n . subscribe ACEDB-SOFT a k r Aw F Cf O F
B unsubscribe ACEDB-SOFT a k r Awk E O k EjF E Ey Awi F
k acedb e k B t j f k b r F k k

4.7 ACEDB 7 C

ACEDB r F r C k f T C o C E F k 1992
1 s j C 1993 9 s 1994 b s j B3 1995 O 3 E 5 k
Dj k

5 ACEDB D5A

A DB C C

5 ACEDB D A D

C D C A

A D A A C

A

5.1

5.1.1 BNF F

N N BNF D F N E

BNF F N Backus-Naur Form N F k - B C N CF

k

```
------------------------------------------------------------------
[a] < > <> a
[b] ::= :
[c] | (or)
[d] = > - = - = b r <(
[e] >e- [a][d] = >
 = - r = = - r <(

< >::=0|1|2|3|4|5|6|7|8|9
 = 1 0 1 9 5 5 0

 0 9 5 = 8= a > 5 5 : c (
< >::=0|1|2|...|9
 5-= 5 5 => = - >e2 > 9 4 r 7

------------------------------------------------------------------
```

3 r ACEDB o k E D A F k Nα s k

```
------------------------------------------------------------------
<models> ::= <model>
         | <model> <models>
         ;
 l models a
1 model
1 model = l 3 models
 : 5 5 5 l
```

BNF 5- 9 OF5 l ALGOL 60 G O :F5 5Ab 9 o l F >eN NcG

b l F => F >eN models O 1 N b G O 1 N b G

```
-------------------------------------------------------------------
```

5.1.2 ACEDB

1.

(?Paper, ?Journal, ?Author, #Address) r s #A # e
#1 ? ACEDB # l r J ? a r (#

```
-------------------------------------------------------------------
?Paper      Title   UNIQUE Text Int
            Author ?Author XREF Paper
            Page Int UNIQUE Int
            Reference UNIQUE Journal ?Journal XREF Paper
                             Book #Paper
                             Personal_communication
            Language UNIQUE  French
                             English
            Complete_Text ?LongText

?Journal Paper ?Paper XREF Journal

?Author Address Int #Address
        Paper ?Paper XREF Author
        Director UNIQUE ?Author XREF Colleagues
        Colleagues ?Author XREF Colleagues

#Address  Mail Text
          Phone Int REPEAT

                N? #   ACEDB  -     N Nc
-------------------------------------------------------------------
```

F ? i A _ 1 F k # D N # D N i B
N i F M#1 N It i k L A r D # F N i JB B ? It i
k - Cf E J# J k L J?Paper, ?Journal E h C 1 J l #

D ? #1 B (l J s s #? . # l

J#1 ? JTitle d French E J D C s s l l

J# p ? ? JInt, Float, Text

J# # JXREF, UNIQUE, REPEAT

?Author

? #Address

#? r A XREF e r
#s h # ? h F
r F # F ? r #

```
----------------------------------------------------------------------
acePaper Title ``ACEDB - a database for Genomic Information''
         Author ``Thierry-Mieg J.''
                ``Durbin R.''
         Reference Book Title ``Genome Mapping and Sequencing''
                        Author ``Richard Myers'' -C ``et al''
         Language French

``Thierry-Mieg J.'' Address 1989 Mail ``Observatoire de Meudon''
                            1992 Mail ``CNRS, Montpellier''
                                 Phone  33 67 61 33 24 -C ``Direct line''
                                                   21 -C ``Secretariat''
                                             52 15 59 -C ``Fax''
                    Paper  acePaper

               N  2  'ACEDB    8 '    N NcO
----------------------------------------------------------------------
```

```
 k  i 9 N  s 9  s 9  JD     k  i 9  B 9   8 '    b   D   G  5 1 k  J
2      G   9‘L  B N   8 '    N   s   r 4 s G  k    8 '  G O  N
i 9  b G k r 1 C 5  J 1 1 P J i J   D      O L7b 7 J  g x G q  1 F  J 1 1 P J i
J   G   9‘L O b G k G  D 5 1     9gC 7    s   O b G k G  D 5 1 F  k  i
9 N   8 '   r 2  7 J 1 1 P J i J   h C F  ACEDB   A    o    F
```

#C D s r

C ? B s B F A #

ACEDB r s e # E o

D C F # CF r

h CF # h A r D ?

t E R F C r

F

C ######E B # ###

###E B E F D F

C A Br ? #D r D # Language ?

Reference e E A Brh B E #D r A Br ? s ? ?

L #D g Title e E l r A Br B T #

Cf ? ? i ? ? i l ? ? C E#r F

i ? D i A D s s F Paper acePaper Cf Author E ? # l F

Author h

A t
A r
Thierry-Mieg e r o
A T - g t r i h - r
g r

MM ?Paper #Paper r #
#Type ? e o
##Type ######
###P##A#T #

e r M A i ACEDB ? M P
P C C o i B r a # i ? A
i C # i ###E#r #C P C
Mr g E # ACEDB LongText DNA Array
classes r D A - #D#N#A s N B E ? N C #

5.1.3 BNF Grammar for the ACEDB Models

```
<models> ::= <model>
           | <model> <models>
           ;
<model> ::= ?<model name> <unique> <tag column>  /* For classes */
          | #<model name> <unique> <tag column>  /* For constructed types */
          ;
<tag column> ::= <tag node>
               | <tag node> NL <tag column>
               ;
<tag node> ::= <tag>
             | <tag> <unique> <data cluster>
             | <tag> <unique> START_INDENT <tag column> END_INDENT
/* In addition, in ACEDB 1-x, we allowed   */
             | <tag> <unique> START_INDENT <data cluster> NL
                                           <tag column> END_INDENT
/* This construction however can lead to ambiguities when parsing data and */
/* will be forbidden in release 2-x */
             ;
<data cluster> ::= <data type list>
                 | <data type list> REPEAT
                 | <data type list> #<model name>
                 | #<model name>
                 ;
<data type list> ::= <data type>
                   | <data type> <unique> <data type list>
                   ;
<unique> ::= <null>
           | UNIQUE
           ;
```

```
<data type> ::= <primitive data type>
              | <class reference>
              | ANY /* reserved for kernel use */
              ;
<primitive data type> ::= Int
                        | Text
                        | Float
                        ;
<class reference> ::= ? <class name>
                    | ? <class name> XREF <tag name>
                    ;

<tag> ::=  /* string starting with a letter or digit,
                       and containing letters, digits and '_' */
        ;
<model name> ::= /* string starting with a letter or digit,
                       and containing letters, digits and '_' */
               ;
```

5.1.4 5

5

1. //

2.

5.1.5 Additional Rules

1. /

2. ACEDB A D D A A 1 B 1 2 B 2 (START_INDENT S END_INDENT) 2 T (NL) C I

3. ?C XREF T N <class reference> T ?M / C N Cf l M ? B ? F F E l XREF L l

5.2 ACEDB

5.2.1 s s

ACEDB / X racle S ase C? l ? Bf F D N ? L FMF LA I l C s l 3 l I E L l S LND BT CF Cf? E l s M FC r D / C r A N)F 3 N? a / C r ? s X / XN s ? r DI 1 3 2 Nc

```
------------------------------------------------------------------
     samPapers := {Find Paper Author = Sam } ;
     { Find Journal Proceedings* ; Follow paper }
           AND $samPapers ;
      Year >= 1992 ;
------------------------------------------------------------------
```

samPapers
Proceedings of something or other r r ms h e a
i c P r P samPapers r h i
P
r d g o t c P a e

```
-------------------------------------------------------------------
   Find Paper
     Author = Sam AND Journal = Proceedings* AND Year >= 1992 ;
-------------------------------------------------------------------
```

5.2.2 2

5
2
2 Find Paper
r From samPapers F F r c F
Paper r r n Follow Paper s
r d ms r r d g o F
h F

From samPapers <condition> ;

$samPapers ; <condition> ;

$ $$$ d $$g o; l $ F $ $ $ <set operators> > <set> <
> <

5.2.3

2 <condition> <
> >
< < < <
< <locator> <
<tag>
< <locator> <comparator> <string> < < <
< <locators>
>

A OR B OR C

$ $O O $ $ $ $ A B C $ $ $A i $ $ C $ $l $

A = *

$

A AND NEXT

$OF A $ $ $ A $N $N N e $ = $r $ $ $ B $ $l $PT R E $r $ $ $ $ $
$l $PF A E $r $

5.2.4 Atomic Condition

4 **o** **A** **i** **A** **C** **5** **C** **A** **i** **A** **i** **i** **C** **i** <condition> > > = c IS <string2> IS = <string2> > <strings> < (* , ?) r s c (a*ba* a ba r s * I ? g o <locator> < # = #### i #### I 2 l #### c #, d b = o s r # * = r = ? b b = = l l i c s #* I I b b #type I l r = #

5.2.5

Cc **d** **o** **o** **d** **o** **5** **5** **i** **o** **C** %1, %2, %3 y e , 2 = #3 l %%%%%%%% e l #% %%%% % %% l ? % %%%% 2 = b It %%%%I , l #

5.2.6 C

5 **5** **A** **t** **C** **C** **4** **C** **n** **i** **CA** ACEDB * B , a 3 %D % 3 l ? #

5.2.7 ACEDB d o B

```
<query> ::= <single query>
          | <single query> ``;'' <query>
          ;
<single query> ::= <target set>
                 | <target set> <condition>
                 | ``@'' <file_name> <parameters>   /* command file */

/*       Set operations:  not implemented in release  1-8
                 | <set>
                 | <set name> := <set>
                 ;
<set> ::= <simple set>
        | <set> <set operator> <set>
        ;
<simple set> ::= { <query> }
               | ( <set> )
               | $ <set name >
               ;
```

```
<set operator> ::= ‘‘|’’ | OR
                 | ‘‘&’’ | AND
                 | ‘‘^’’ | XOR     // exclusive or
                 | ‘‘-’’ | MINUS
*/
                 ;

<target set> ::= <null>         /* then the current key set is used */
               | <find class> <class name>
               | <follow> <tag>
     /* we could possibly allow <follow> <atomic condition> */

/*         Set operations:  not implemented in release  1-8
               | <from set> <set name>

<from set>   ::= ‘‘>$’’ | FROM
*/
               ;

<find class> ::= ‘‘>?’’ | FIND
               ;
<follow>     ::= ‘‘>’’  | FOLLOW
               ;
<condition> ::= <atomic condition>
              | <not> <atomic condition>
              | <condition> <operator> <condition>
              ;

  /* Order of precedence: OR, XOR, AND, NOT, #, comparator, IS, CLASS */
<operator> ::= ‘‘|’’ | OR
             | ‘‘^’’ | XOR
             | ‘‘&’’ | AND
             | ‘‘#’’      /* AND, with jump in constructed type */
             ;
<atomic condition> ::= IS <regexp>     /* short hand for IS = <regexp> */
                     | CLASS <regexp>  /* Checks class of object matches regexp */
                     | COUNT <locator> /* counts the number of
                                          entries in the column right of locator */
                     | <locator>
                     | <atomic condition> <comparator> <regexp>
                     | ‘‘(‘‘ <condition> ‘‘)’’
                     ;
<locator> ::= <tag> /* go to tag according to current model (which
                       will depend on # symbols encountered previously) */
            | HERE  /* stay put */
            | NEXT  /* move one node right */
            | IS    /* relocates at root and stands for the name of the object */
            ;
    /* All comparators have equal precedence */
<comparator> ::= ‘‘<’’  | LT
               | ‘‘>’’  | GT
               | ‘‘<=’’ | LE
               | ‘‘>=’’ | GE
               | ‘‘=’’  | EQ
               | ‘‘!=’’ | NEQ
               ;

<tag> ::= /* string starting with a letter or a digit
                             and containing letters, digits or ‘_’ */
```

```
          ;
<class name> ::= /* string starting with a letter or a digit
                             and containing letters, digits or '_' */
               ;
<set name> ::= /* string starting with a letter or a digit
                             and containing letters, digits or '_' */
               ;
<reg exp> ::= /* integer or float decimal number */
            | /* string of letters, digits, _,
                 ? (matching one letter) and * (matching any substring */
            | /* arbitrary ascii string protected by double quotes */
            ;
```

5.2.8 5

5 2

1. //

2. / / / 2 1

3.

4. / 1 / 1 / /

5.2.9 Additional Rules

1. <comparators> > > ACEDB / C r s C t r 1 a 3 r a 2 . D

2. <condition> <target set> > < < < <locator> < < <locator> <comparator> <string> < < < <

3. <set name> <set name> := <set> > < vt100 / i s 1 D 3 s =

5.3 ace file a

5.3.1 5 R

9 8 8l 9 9 s 9 9 i l 2 l a s l 3 i s i i i s 9 5 l 9

8 9 i i i 9 8 8 1

ACEDB

C

C

```
-------------------------------------------------------------------
Paper acePape
Title  ``ACEDB - a database for Genomic Information''
Author ``Thierry-Mieg J.''
Author  ``Durbin R.''
Book  Title ``Genome Mapping and Sequencing''
Book  Author ``Richard Myers'' -C ``et al''
Language French


Author ``Thierry-Mieg J.''
Address 1989 Mail ``Observatoire de Meudon''
Address 1992 Mail ``CNRS, Montpellier''
Address 1992 Phone  33 67 61 33 24 -C ``Direct line''

Author ``Thierry-Mieg J.''
Address 1992 Phone  33 67 61 33 21 -C ``Secretariat''
Address 1992 Phone  33 67 52 15 59 -C ``Fax''

               N  3 'A C E      k N NcO
-------------------------------------------------------------------
```

5.3.2 BNF Grammar for the ace-update language

```
<ace file> ::= <object update>
     |  <object update> NL NL <ace file>
     ;
<object update> ::= <class name> <name>
            | <class name> <name> NL <data lines>
            | -D <class name> <name>         /* Delete */
            | -R <class name> <name> <name>  /* Remame */
            | -A <class name> <name> <name>  /* Alias */
```

```
             ;

<data lines> ::= <data line>
               | <data line> NL <data lines>
               ;
<data line> ::= <path>
              | -D <path>          /* Deletion */
              | -T <path>          /* Tops within column, not in 1_8 */
              | -R <datum> <path>  /* Substitution, not in 1_8 */
              ;
<path> ::= <simple path>
         | <simple path> # <path>
         ;
<simple path> ::= <tag>
        | <tag> <data list>
                ;
<data list> ::= <datum>
              | <datum> <data list>
              ;

<tag> ::= /* string starting with a letter or a digit
                             and containing letters, digits or '_' */
             ;
<class name> ::= /* string starting with a letter or a digit
                             and containing letters, digits or '_' */
               ;
<datum> ::= /* string  containing letters, digits or '_' */
          | `` /* arbitrary printable string protected by double quotes */ ''
          ;
```

5.3.3 5

5

1.

2.

3. // 3 3

4. / / / 2 1 2
4 /
/ ( )

```
here is some text from a very long line.  There will be only o
one space between ``only'' and ``one''.
```

5. 3 @fileName 5 l @ N 1

6. 4 5 l

7. N N /) 5 l a N 1
N @ /) 1 l l / / 7 5 ACEDB 7 @ /)
5 l A C @ N N N e m 5

5.3.4 Additional Rules

<path> <data list> > <
> <datum> > <
< Float Int <datum>
< <
<datum>
<
< < -Delete -Alias -
Rename D i l l i i F - h i
F s FI l s o -

6

ACEDB A B
D B ACEDB E
B ACEDB C
B B D A E
A B A
EE C A C
C D C C C
C A
C ACEDB A
B C A A A
B C C
E C C
C A
C E D E
E C D

D E E A
E C ED E

7

acedb -- A C. elegans Database: III. Configuration Guide (on-line).
by Richard Durbin and Jean Thierry-Mieg (1991-)

Sherman, Bradley K. (1994) "ACEDB Genome Database FAQ"
Usenet news.answers. Available via Universal Resource
Locators ftp://rtfm.mit.edu/pub/usenet/news.answers/acedb-faq
and http://probe.nalusda.gov:8000/acedocs/acedbfaq.html.

ETAR. y , D G p Js9) , J:bK J AwBg 0i q