



McGill

Conference Office

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Mr. Jonathan Eisen

Stanford Univ.

Dept. of biological Sciences

Herrin Hall #356

Stanford, CA

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Service des conférences

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June 1, 1995

Dear Mr. Jonathan Eisen:

Re: Society of Systematic Biologists (SSB)
Society for the Study of Evolution (SSE)
American Society of Naturalists (ASN)
Numerical Taxonomy Group (NT)
July 8-12, 1995

Thank you for agreeing to present a paper entitled:

Evolution of the RecA Protein and the Phylogeny of Bacteria

Your paper has been scheduled for oral presentation in the following session:

Session No:	6
Session Title:	Molecular Evolution: Gene Evolution
Time and Date:	8:30 AM to 12:00 PM, Sunday, July 09, 1995
Location:	Leacock 219

Each oral presentation will be allotted 15 minutes in total, and should be no more than 12 minutes in duration, leaving 3 minutes for discussion. Overhead projectors and 35mm carousel slide projectors will be available in each session room.

If you require any further information please contact the Evol Secretariat.

We look forward to seeing you at the Conference.

Evol Secretariat



McGill

Residences
McGill University
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Montreal, PQ, Canada H3A 2B4

Academic Year Admissions & Fee Enquiries: Fax: (514) 398-6770
(514) 398-6368
Summer Accommodations:
(514) 398-6367

JONATHAN EISEN
HERRIN HALL 356, STANFORD U.
STANFORD, CA
USA
94305-5020

EVOLUTION & BIOLOGY
From: 07/08/95 To: 07/13/95

Dear Sir/Madam

This will confirm that we are holding a room for you in the Coed Residences. We have received your deposit in the amount of \$ 0.00, made by Credit Card. Your reservation is confirmed for the following dates: Arrival: 07/07/95 Departure: 07/12/95

Please note that the deposit (for reservations confirmed with a credit card) will not be processed until arrival.

Would you please check in at Bishop Mountain Hall, 3935 University St., and show this confirmation when checking in. Should you have any questions concerning your reservation, please do not hesitate to contact our office at (514) 398-6367. We look forward to welcoming you to our Residences this summer.

McGill University Residences
Summer Accommodations

EVOLUTION ET BIOLOGIE
du: 07/08/95 au: 07/13/95

Monsieur/Madame

La présente sert à confirmer que nous avons réservé une chambre pour vous aux Résidences Mixtes. Nous avons reçu votre dépôt de \$ 0.00 par carte de credit.

Votre réservation est maintenant confirmée pour les jours suivants:
Arrivée: 07/07/95 Depart: 07/12/95

A votre arrivée, veuillez s'il vous plait vous présenter au comptoir du Bishop Mountain Hall, au 3935 rue University, et présentez cette lettre lors de votre arrivée. Veuillez agréer l'expression de nos sentiments les plus distingués.

Les Résidences de l'Université McGill
Logements d'été

Society of Systematic Biologists (SSB)
Society for the Study of Evolution (SSE)
American Society of Naturalists (ASN)
Numerical Taxonomy Group (NT)

EVOL '95

Additions and Program Changes

Society Board, Council, and General Meetings:

Saturday, 8th July

12:00 - 1:30	Arts Council Room	Joint SSB/ASN/SSE/NT council meeting
2:00 - 5:00	Leacock 738	ASN board meeting,
	Arts Council Room	SSE council meeting,
	Redpath Museum	SSB council meeting

Sunday, 9th July

12:00 - 2:00	Leacock 26	SSE General meeting (all members welcome)
	Arts Council Room	SYSTEMATIC BIOLOGY editorial board meeting

Monday, 10th July

12:00 - 2:00	Leacock 26	ASN General meeting (all members welcome)
	Arts Council Room	EVOLUTION editorial board meeting
5:00 - 7:00	Arts 125	NT General meeting (all members welcome)

Tuesday, 11th July

12:00 - 2:00	Leacock 26	SSB General meeting (all members welcome)
	Arts Council Room	AMERICAN NATURALIST editorial board meeting

NSF Sessions:

National Science Foundation Open Sessions will be held Sunday, 9th July, and Monday, 10th July, from 12:00 - 1:00 in Arts 125.

Program Correction:

Session 28 **Molecular Evolution: Estimation and Variation**, Monday morning, 10th July, will be held in Arts 255, not Arts 125 as listed in the program.

Title Change:

Session	Time	Date	New Title and Author
66	11:00 am	12th July	Changes in Fluctuating Asymmetry During <i>Dendroaster</i> Development. *R. Collin

Poster cancellations:

No.	Session	Day	Author(s)
201	21	Sunday	Charlesworth, Nordberg, and Charlesworth
210	21	Sunday	Del Castillo
220	21	Sunday	Jones
267	21	Sunday	Konkle and Phillip
268	21	Sunday	Nur
471	42	Monday	Castaneda
533	42	Monday	Norenburg, Rogers, Bustamante, and Ferraris
540	42	Monday	Vitale, McDowell, Price, and Meagher

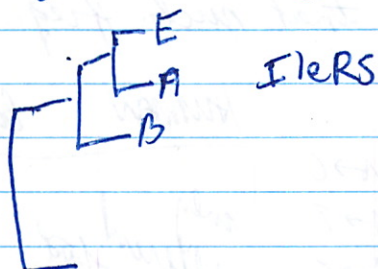
Paper cancellations (‡ = replaced, see below):

No.	Session	Time	Date	Authors
197 ‡	19	4:45 pm	9th July	Alves-Gomez, Shedlock, Haygood
300	24	9:15 am	10th July	Chippindale
308	24	11:45 am	10th July	Birt, Friesen, Baker
330 ‡	26	11:30 am	10th July	Hey and Leahy
337	27	11:45 am	10th July	Hey and Leahy
343	28	9:45 am	10th July	Palsboll, Berube, Jergensen, Arctander
369	30	10:45 am	10th July	Schliewen, Tautz
560	44	9:45 am	11th July	Toal, Crother
571	45	9:30 am	11th July	Lawson
610	48	10:45 am	11th July	Smyth, Smith, Jones
671	54	3:00 pm	11th July	Holzmann, Anderson, Dietz, Schierwater
679	55	2:00 pm	11th July	Duncan
683	55	3:00 pm	11th July	Wardle
690	55	5:15 pm	11th July	Williams, Sokolowski
722	58	4:15 pm	11th July	Bossart, Scriber
724	58	4:45 pm	11th July	Secord
765	64	8:30 am	12th July	Rehneri
776	64	11:45 am	12th July	Litt
808	67	10:45 am	12th July	Bauer, Begun, Aquadro
811	67	11:30 am	12th July	Schaeffer, Pritchard
812	67	11:45 am	12th July	Cohan, Mitrica

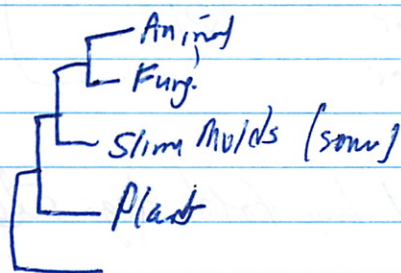
Time Changes and Replacement Papers:

Session	Time	Date	Title and Author (* = speaker)
19	2:45 pm	9th July	The Origin of Doubly Uniparental Inheritance of Mitochondrial DNA in Bivalves. *R. Hoeh, D. Stewart, E. Zouros (Time change, replaces #191: Zouros et al.)
19	4:45 pm	9th July	Peculiarities of Molluscan Mitochondrial DNA *E. Zouros, C. Saavedra, D. Stewart, and R. Hoeh (Time change, replaces #197: Alves-Gomez et al.)
26	11:30 am	10th July	Phylogenetic Inference *Robert Mau. University of Wisconsin at Madison (New, replaces #330: Hey, Leahy)
46	11:15 am	11th July	Polymorphism in the Presence of Concerted Evolution: an Example from Cotton. *Richard Cronn. Iowa State University (New, replaces #588: Hoeh et al.)

JR Brown - Rooting the tree of life

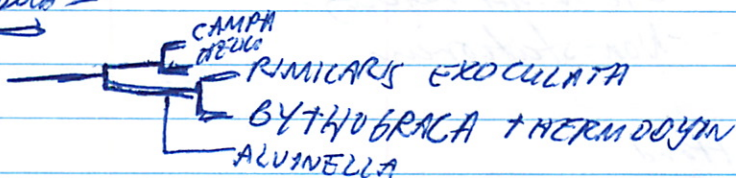


S. Baldwin



R. Feldman

- Vent crab
- Shrimp at mid-atlantic ridge
- Alvinella



SAYS SOME XS

THE KINGNucleotide Substitution

- one assumption is that nucl. freq. is stationary

- neighbor-freq

HUMAN bonnae

- Calcul

A → G

A → T

A → C

G → T

G → C

T → C

only different
for C

- Subs. rates higher at two fold deg. sites

DNA seqs

- Branch length heterog.
- Transition bias
- Unequal base freq.
- Site to site heterog.
- Non-stationary

Paraliniarity / log DetSwafford

- Distance matrices ... most are Markov models

	A	C	G	T
A	-	π_{ca}	π_{cb}	π_{ct}
C	π_{ca}	-	π_{cb}	π_{ct}
G	π_{cb}	π_{cb}	-	π_{ct}
T	π_{ct}	π_{ct}	π_{ct}	-

-log Det

J Drake

Mutation / genome

$$3.3 \times 10^{-3}$$

$$1 - 2$$

DNA microbes

RNA microbes

LC - RNA viruses

Assumption

Forward
↕
backward

forward mutation is much
higher than backward

- problems w/ concept

① ignores compensatory mutations

② sexual reproduction in viruses

- DNA viruses ... yes

- RNA viruses ... some lack it

- e.g. VSU ... these have segmented genomes

MULTI-COMPONENT VIRUSES

- 1

φ6 ... host *Pseudomonas phage*

David HillisDefinitions of

- ecology
 - pop. genetics
 - systematics
- study of the obvious
 - quantification of the obvious
 - obfuscation of the obvious

Phylogeny

- Salv. Dali painting
- How accurate?

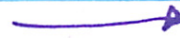
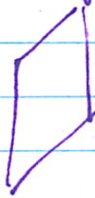
Parametric Bootstrap

- create model
- re-simulate w/ trees
- ask... do you get misleading results.

DNA sequence space



protein sequence space



immunogenic space



suggests that viruses may be "hovering" around regions of DNA seq. space that allow for greatest variation in immunogenic space.

To be honest which I'm tempted to do.

JL Thorne - 2D Structure



what about trying

- 207 aligned sets of protein sequences

Rasmus Nielsen

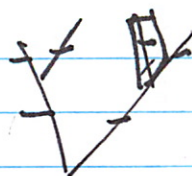
- looks at rate of saturation of replacement vs. silent substitutions

M. Nachman, C. Agreus

mouse recombination

map density \propto w/ recomb. rate

EC Metz SR Paralembi

Mitochondria - Mt Perua

#t-ratio
#f-ratio

- AT bias in strands
- also a bias in replication

Why would strands differ

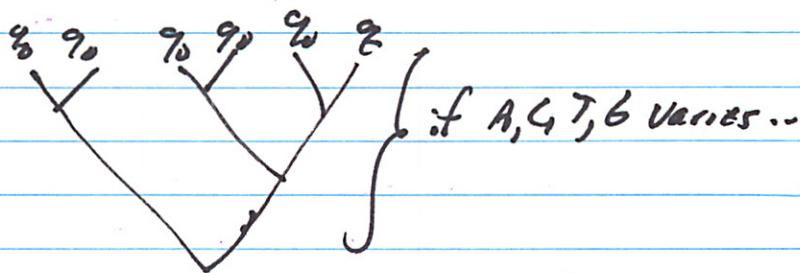
- diff. replication complexes
- some of 2nd strands not finished
- ss & dsDNA diff. mutation
- nucleotide available

Are sites synonymous sites synonymous?

- only one tRNA for 4 fold sites

T Collins G Naylor D Wilmberger 7/11

Compositional bias



- w/ parsimony analysis ... you underestimate the # of changes at diff sites esp. w/ higher # of changes.

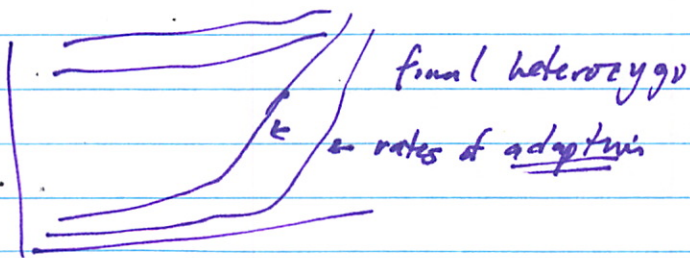
- most severely underestimate rare - common changes
- human mt DNA $G \rightarrow A \leftarrow C \rightarrow G$
- as base comp. becomes more extreme saturation occurs at low divergence

C. Colby - Adaption Limitation

says proponents of SAM should work on one strain

2 loci - 2 alleles

- haploid - no recombination
- 2 environments

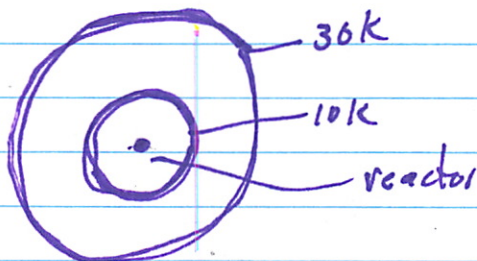


mutation freq

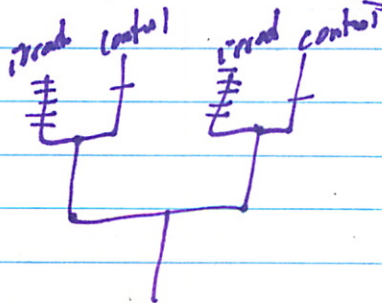
- higher diversity after selection due to sweeps

RJ Baker

Chernobyl -



- mice ... high internal & external dose
- amplified cyt b
- got 1 seq. from individuals
- control from 35 mi S. of reactor



$$\mu \approx 2.1 - 2.5 \times 10^{-4}$$

BUT DID
MOM LIVE
IN AREA
& HAVE BABIES
IN AREA.

- calculate prob of finding mutations in embryos
 $\mu \hat{=} 3.5 \times 10^{-4}$

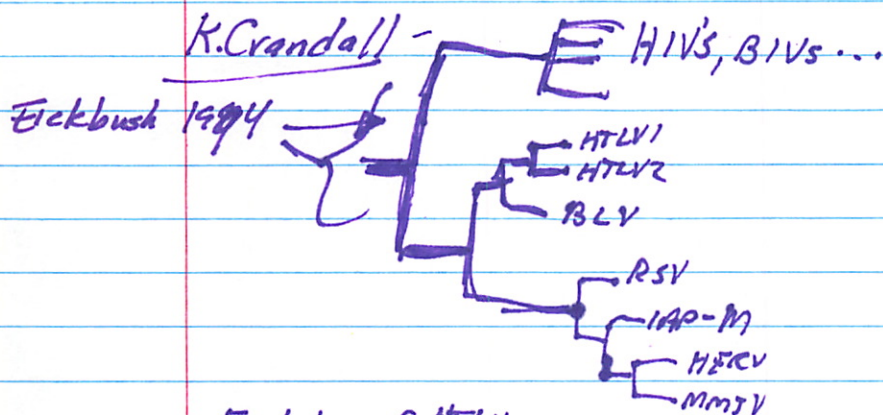
- wildlife ...

J. Mittler - $T3X + \lambda_{vir}$ persist longer than expected

~~etc~~

① survival of $T3X$ depends on refugia in chemostats
" " λ_{vir} does not depend " " "

② some frequency dependence



Evolution of HERVs

- low divergence
- outgroup too far
- "within species" \therefore recombination, ...

Templeton method