

# Re: Evolutionary interplay of caution and boldness in populations

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*Source:* <http://sci.tech-archive.net/Archive/sci.bio.evolution/2005-11/msg00279.html>

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- *From:* "Anthony Cerrato" <[tcerrato@xxxxxxxxxxxxxx](mailto:tcerrato@xxxxxxxxxxxxxx)>
  - *Date:* Sat, 19 Nov 2005 23:22:58 -0500 (EST)
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<[stargene@xxxxxxxxxxxxxx](mailto:stargene@xxxxxxxxxxxxxx)> wrote in message  
[news:dll6at\\$1qo3\\$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:dll6at$1qo3$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)  
> A recent study in the journal Cell, by Gleb Shumyatsky and  
others,  
> indicates that the difference between "normally cautious  
mice" and  
> "bold mice" is one gene, which governs the protein  
stathmin in the  
> amygdala. The ramifications for drug and even gene  
therapy are  
> obvious, yet it seems to me that a larger and more complex  
issue  
> may loom in the wings here:  
>  
> It seems to me that the survival of a population and  
indeed a species  
> may often hinge on the complexity or flexibility of its  
response to  
> environmental pressures. I can imagine times when, for  
example,  
> caution and even timidity might confer greater survival  
for a popu-  
> lation and other times when bold, dynamic actions would be  
the  
> more appropriate survival response. The great variety of  
possible  
> human responses to environmental pressures comes to mind:  
a  
> human community having many different kinds of people --  
with  
> many different response potentials in different  
individuals, each  
> having different sensibilities and capacities -- will  
likely have a  
> greater flexibility of response and a greater  
survivability. Ie: there  
> is a place and time for the cautious and a place and time

## Re: Evolutionary interplay of caution and boldness in populations

for the

> bold 'mice'.

>

> Gene

>

> Question: What computer modeling has been done exploring the

> evolutionary/survival value, for an artificial population, of a wide

> range vs. a narrow range of responses, in environments having

> different degrees of complexity and severity in their impacts on

> populations/species?

The study you cite is very fascinating! The argument you make re "flexibility" is certainly a good one, and I agree with it, but I think the question you pose is much too general—what options must one consider in these ranges, narrow to wide? ISTM that there are very few response available to animals in response to physical threats/changes in environment etc. anyway—i.e., the question seems more appropriate to social/psychological problems, and there would seem to be a plethora of options there too. (note: I am only a layman in the bio–evo field, so take this all with a grain of salt.)

Robert Reich took an entire book ("Non Zero: the Logic of Human Destiny") just to discuss the costs vs. benefits of the 2–valued system involving cooperation vs. competition through human history, and to generalize that (rather tenuously from a game thy. concept) to postulate a long–term general tendency towards the former. More complex option systems might be impossible to tease out even in simulation.

I have a more pressing question: what if a drug or genetic treatment became available to make people more cautious than bold, say, to reduce crime or such (or vice versa too, to make better cops, say,) would it ever become legal?—could/should it ever have any use in society at all...and what if it were used illegally? IOW, what good is this knowledge to us? :) ...tonyC

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### • *References:*

Re: Evolutionary interplay of caution and boldness in populations

◆ **Evolutionary interplay of caution and boldness in populations**

◇ From: stargene

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