

I° CONGRESSO INTERNAZIONALE  
DI MEDICINA INTEGRATA



**11.50-12.10 Paolo Bellavite**

*Omeopatia e acqua informata: prove sperimentali  
di laboratorio su cellule e animali*

*Marta Mazotto ~ Mirko Cristoforetti ~ Debora Olioso ~  
Anita Conforti*

# IL “NULLA”

*“Tutti i prodotti omeopatici che si vendono in farmacia contengono tutti la stessa cosa, cioè nulla”*

S. Garattini, direttore dell’Istituto di Ricerche Farmacologiche Mario Negri

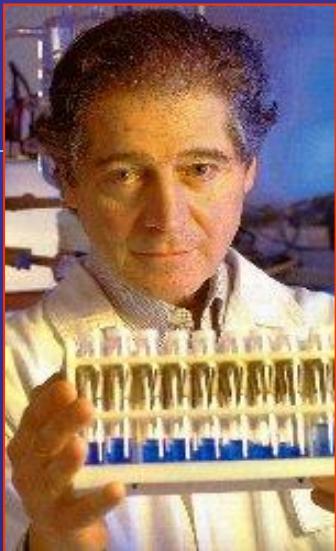
(intervista a Radio24 viva voce, 27 agosto 2007)



# Gli italiani del “nulla”



Elena Niccoli, Lucietta Betti, Paolo Bellavite, Vittorio Elia , Verona 2010



# L'inizio della storia (1988)

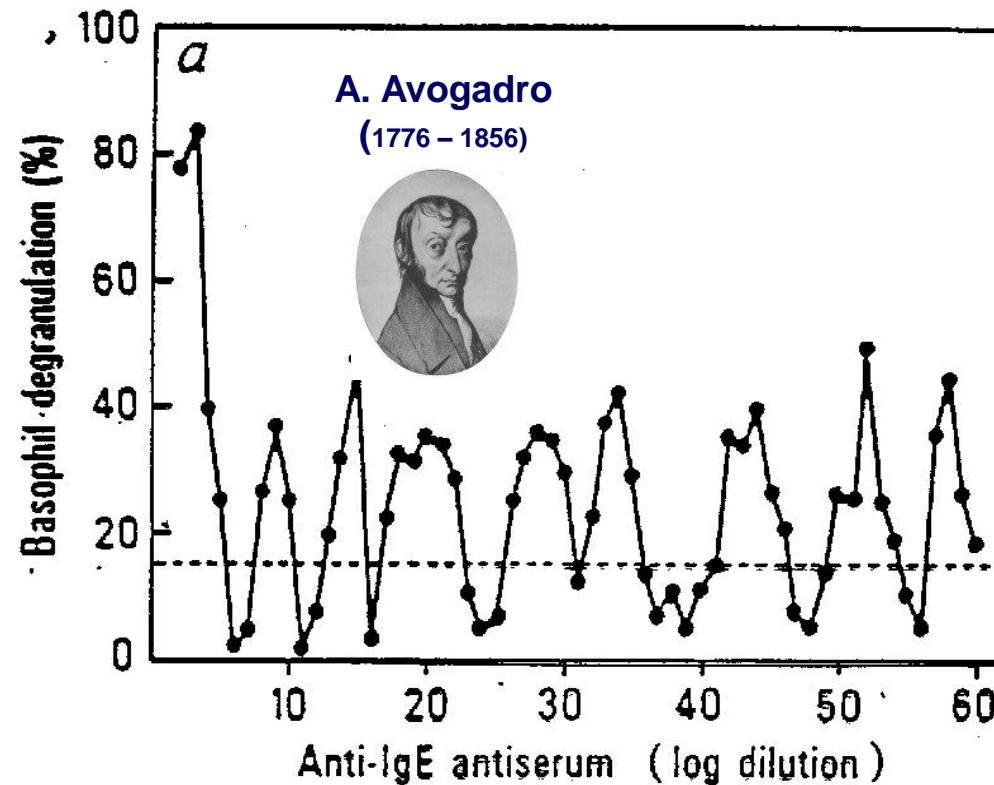
816

SCIENTIFIC PAPER

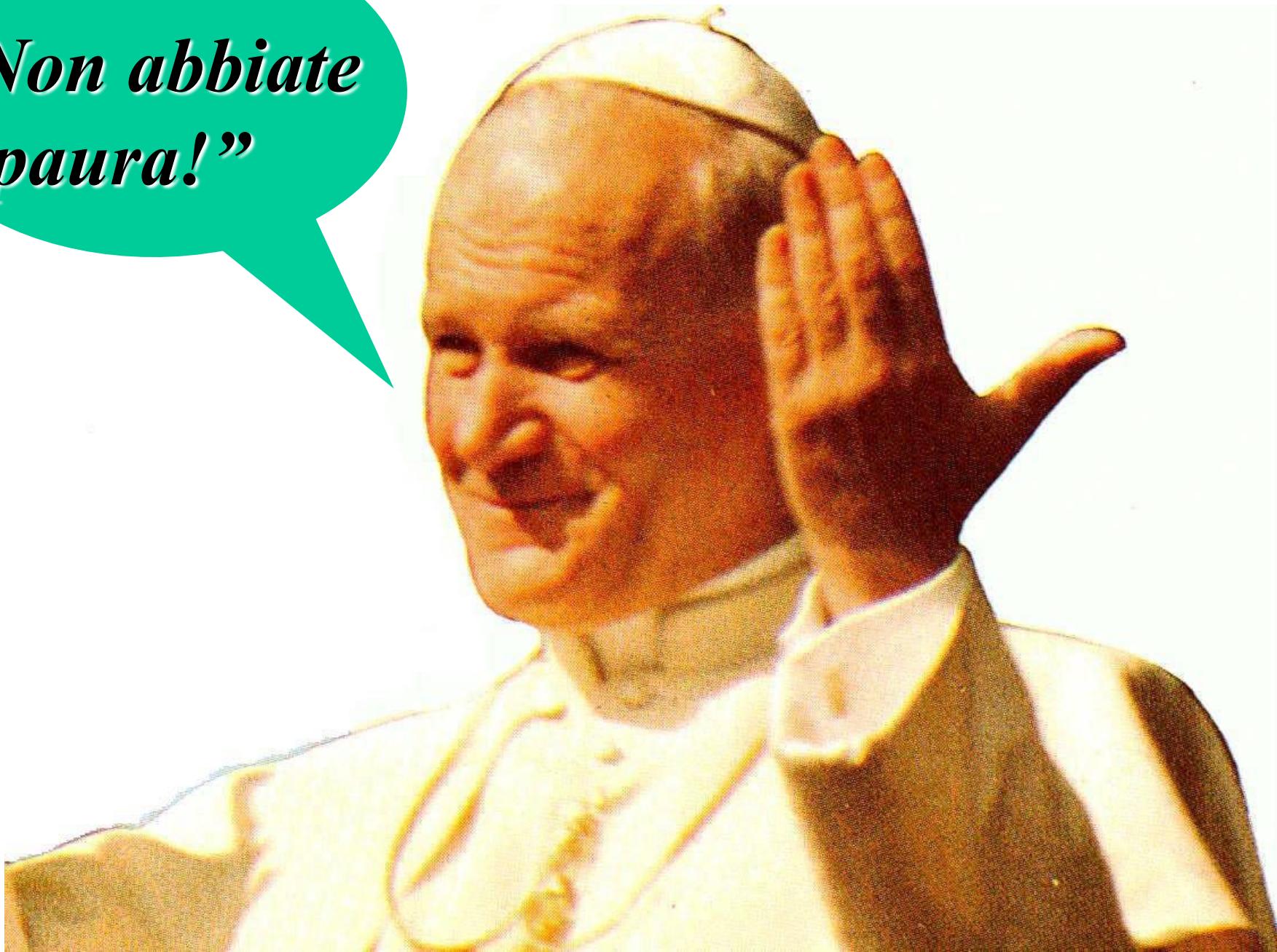
NATURE VOL. 331 30 JUNE 1991

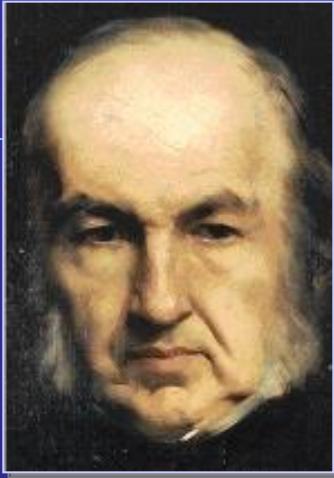
## Human basophil degranulation triggered by very dilute antiserum against IgE

E. Davenas, F. Beauvais, J. Amare\*, M. Oberbaum\*, B. Robinzon†, A. Miadonnat‡, A. Tedeschit§, B. Pomeranz§, P. Fortner§, P. Belon, J. Sainte-Laudy, B. Poitevin & J. Benveniste||



*“Non abbiate  
paura!”*





# Orientamento storico-epistemologico

Claude Bernard (1813-1878)

*"Introduzione allo studio della medicina sperimentale"*

- “*Secondo il metodo sperimentale della scienza l'esperienza si acquista in virtù di un preciso ragionamento fondato su un'idea che l'osservazione ha fatto nascere e che l'esperienza ha controllato.*”
- “*Solo bisogna conservare la propria libertà di pensiero e credere che in Natura l'ASSURDO secondo le nostre teorie non è sempre impossibile*”.

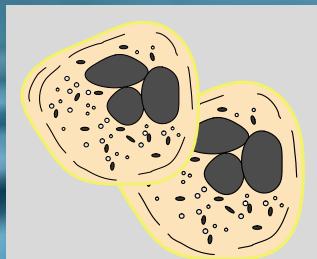




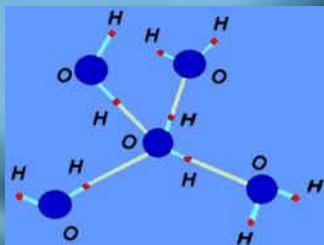
# Ricerca di base sul medicinale omeopatico: modelli e obiettivi



Ricerca “pre-clinica”  
(efficacia)



Meccanismo  
d'azione



Natura  
fisicochimica



A. Avogadro  
(1776 – 1856)

## DOSI E DILUIZIONI

Dicesi Numero di Avogadro il numero di molecole di una data sostanza contenute in una mole di quella sostanza. Si tratta di una costante universale =  $6,022045 \times 10^{23}$  molecole.

**Concentrazione 1 Molare (1M) ~  $10^{24}$  molecole/litro**

**Concentrazione  $10^{-24}$  M ( $\cong 12$  CH) ~ 1 molecola/litro**

**Concentrazione  $10^{-18}$  M ( $\cong 9$  CH) ~ 1 molecola/mm<sup>3</sup>**

**~ 1 molecola ogni 5.000 cellule**

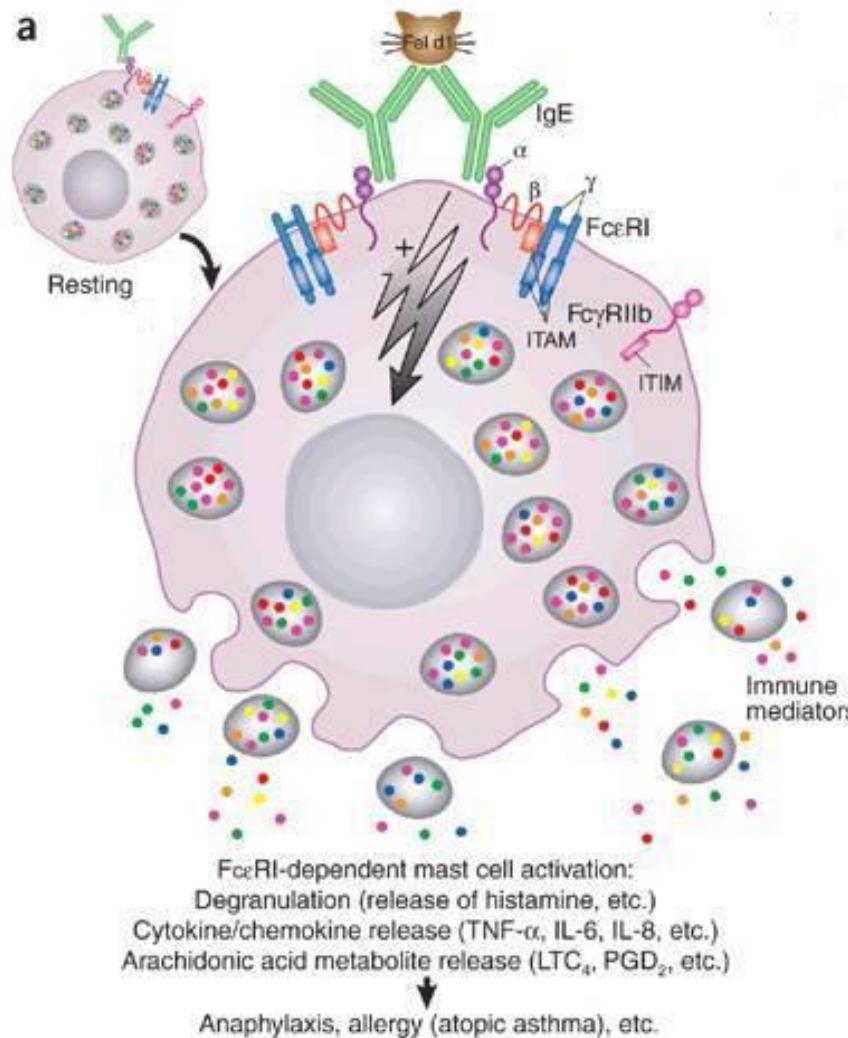
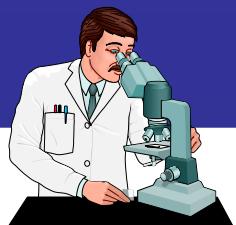
**~ 1 molecola ogni 50.000.000 recettori o enzimi (!!!!)**

21 marzo 2012: in Pubmed: 320 pubblicazioni riportano risultati sperimentali “non omeopatici” con sostanze in dosi  $10^{-18}$  M

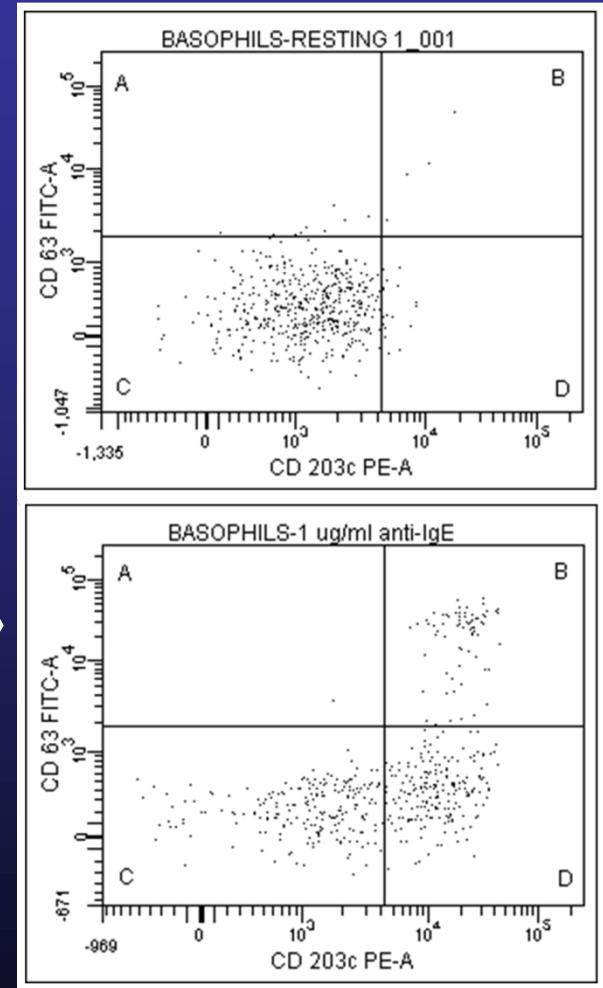
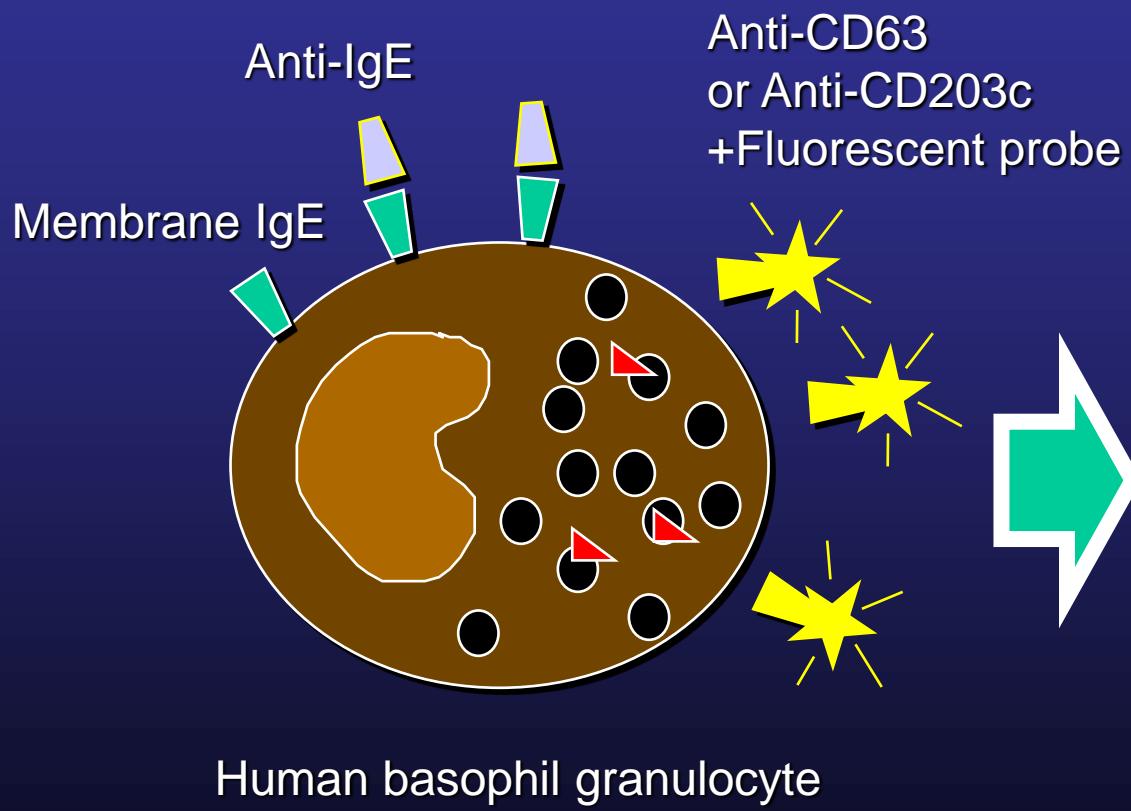


# THE MODEL OF BASOPHIL ACTIVATION

(St.Laudy, Belon, Poitevin, Benveniste, Hirst, Ennis, Bellavite, Mannaioni)



# Cytofluorimetric detection of Basophil activation/inhibition

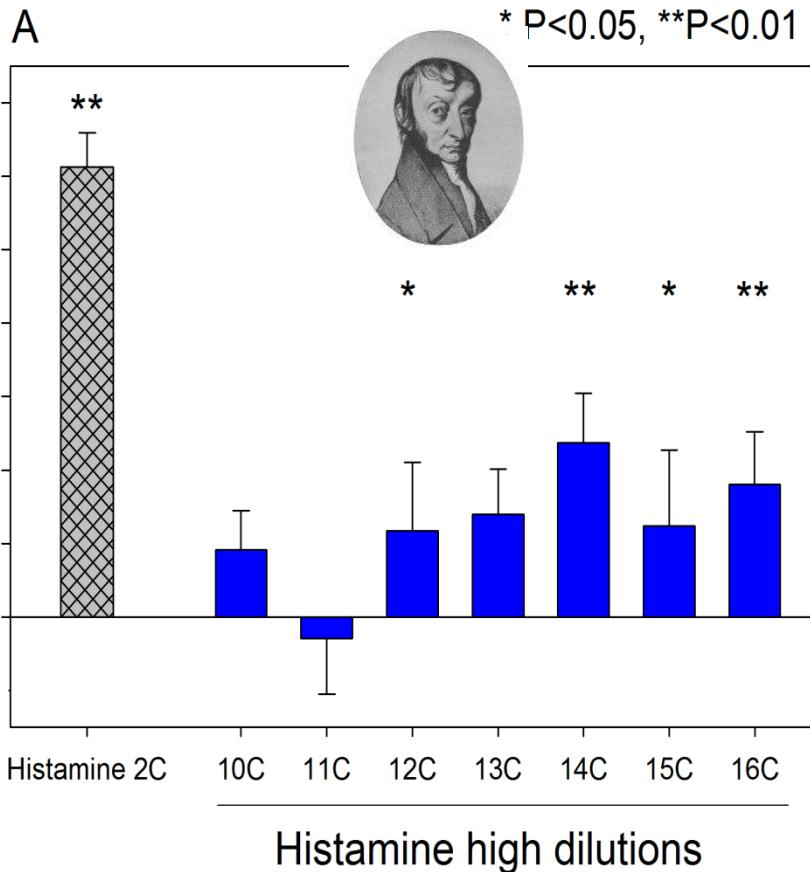


Cytofluorimetric detection



# EFFECTS OF HISTAMINE AND WATER DILUTION ON CD203c

Chirumbolo , Bellavite et al., Inflammation Research 2009





# Reports concerning the effect of highly diluted/succussed histamine on human basophils published in the mainstream literature (part 1 of 2)

	MAIN METHODOLOGICAL ASPECTS					RESULTS	
1 <sup>st</sup> author/year (ref.)	Dilution Dynamization	Protocol of succussion	Control with dynamized water (yes/no)	Protocol/ Parameters	Statistics	Effective molecular doses	Corresponding potencies
Cherruault 1989 ( <sup>1</sup> )	4C-20C ( $10^{-8}$ M- $10^{-40}$ M), water not specif.	Not specif.	Not reported	Optical microscopy	Not reported	$10^{-10}$ - $10^{-17}$ M e $10^{-30}$ - $10^{-38}$ M	5C-9C e 15C-19C
Sainte-Laudy 1993 ( <sup>2</sup> )	$10^{-14}$ M- $10^{-38}$ M, water not specif.	Not specif.	Not reported	Optical microscopy	t-test	$10^{-16}$ - $10^{-22}$ M e $10^{-36}$ M	Not reported
Sainte-Laudy, 1996 ( <sup>3</sup> )	1C-20C, distilled water	Vortex	Not reported	CD63%	Wilcoxon	$10^{-2}$ M, $10^{-4}$ M, $10^{-22}$ M, $10^{-34}$ M	Not reported
Belon, 1999 ( <sup>4</sup> ) (Multicentre)	15C-19C, distilled water	Vortex	Yes but not detailed	Optical microscopy	GLM multivar, Kruskal-Wallis	Not reported	15C-19C
Sainte-Laudy, 2000 ( <sup>5</sup> )	10C-20C, tap water	Vortex	Not reported	CD63%	t-test, Wilcoxon	$10^{-30}$ M- $10^{-34}$ M	15C-17C
Sainte-Laudy 2001 ( <sup>6</sup> )	13C-14C, water not specif.	Not specif.	Not reported	CD63%	Mann-Whitney	Not reported	Stimulation 13C
Brown and Ennis 2001 ( <sup>7</sup> )	$10^{-2}$ M- $10^{-40}$ M, water not specif.	Not specif.	Not reported	CD63%	Wilcoxon	$10^{-2}$ - $10^{-6}$ M, $10^{-14}$ M, $10^{-18}$ - $10^{-20}$ M, $10^{-26}$ M	Not reported
Lorenz 2003 ( <sup>8</sup> )	D0-D34 water for injectable use; brandy	Not specif.	Not reported	CD63-MFI	Not described (SPSS)	$10^{-22}$ M, $10^{-23}$ M, $10^{-25}$ , $10^{-26}$ M	D10-D14





# Reports concerning the effect of highly diluted/succussed histamine on human basophils published in the mainstream literature (part 2 of 2)

1 <sup>st</sup> author/year (ref.)	MAIN METHODOLOGICAL ASPECTS					RESULTS	
	Dilution Dynamization	Protocol of succussion	Control with dynamized water (yes/no)	Protocol/ Parameters	Statistics	Effective molecular doses	Corresponding potencies
Belon 2004 ( <sup>9</sup> ) (Multicentre)	2C-20C, water not specif.	Hand succussed	Not reported	Optical microscopy, CD63%	Kruskal-Wallis, Dunnet	$10^{-28}$ M- $10^{36}$ M	14C, 15C, 16C, 17C, 18C
Guggisberg 2005 ( <sup>10</sup> )	$10^{-2}$ M- $10^{-40}$ M distilled water	Vortex	Not reported	CD63%	Wilcoxon, Bonferroni(AN OVA) F-test	$10^{-2}$ M (and $10^{-22}$ M)	Not reported
Sainte-Laudy 2006 ( <sup>11</sup> )	2C-18C, deionized water	Vortex 10 sec	Yes, but not detailed	CD63%, CD203c MFI, ratio MFI 203c	Wilcoxon	$10^{-4}$ M, $10^{-30}$ M e $10^{-32}$ M	2C, 15C, 16C
Sainte-Laudy 2006 ( <sup>12</sup> )	$10^{-2}$ M- $10^{-40}$ M (2C-20C),	Vortex 10 sec	Not reported	CD63%, CD203c MFI	Test U of M.W.	$10^{-4}$ M, $10^{-30}$ M, $10^{-$ $32$ M	2C, 15C, 16C
Sainte-Laudy 2008 ( <sup>13</sup> )	2C-16C, water deionized	Vortex 15 sec	Yes, but not detailed	CD203c index	Wilcoxon	$10^{-4}$ M, $10^{-32}$ M	2C, 16C
Sainte-Laudy 2009 ( <sup>14</sup> )	2C-18C water, not specified	Not specif.	Not reported	CD203c MFI	Wilcoxon	$10^{-4}$ M, $10^{-32}$ M, $10^{-$ $34$ M	2C, 16C, 17C
Chirumbolo Bellavite 2009 ( <sup>15</sup> )	2C+10C-16C distilled water (ultrapure)	Vertical succussion	Yes, detailed	CD203c MFI	Shapiro-Wilk; Wilcoxon; Friedman	$10^{-4}$ M, $10^{-24}$ M, $10^{-$ $28$ M, $10^{-30}$ M, $10^{-32}$ M	2C, 12C, 14C, 15C, 16C

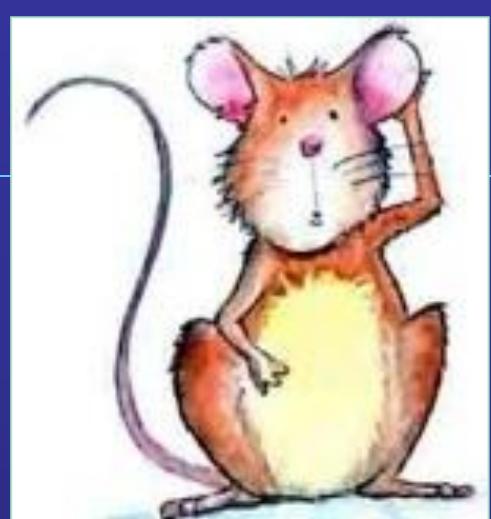


## **Reports concerning the effect of highly diluted/succussed histamine on human basophils published in the mainstream literature**

### **➤ IN SUMMARY:**

- 14 publications (2 multicentre studies)**
- 4 independent laboratories involved**
- 12 papers with positive results**
- 1 negative**
- 1 uncertain**





# Modello murino di comportamento

## Metodi (sintesi)



1. Medicinali prodotti da **Boiron Laboratories (Lyon)** in soluzione idroalcoolica al 30%.
2. **Controllo (“placebo”)** = la medesima soluzione idroalcoolica usata per preparare i medicinali
3. **Diluiti ulteriormente nel nostro laboratorio** 100 volte in acqua distillata e sottoposti a forte succussione  
→ 4 CH – 5 CH – 7 CH – 9 CH – 30 CH
4. Tutti i flaconi con le diluizioni omeopatiche e di controllo sono **codificati** da persone indipendenti
5. **Topi** albini maschi del peso di 30 g randomizzati in 4 gabbie da 2 topi (n=8) per ciascun gruppo





# Scheme of the standard experiment

Albino CD1

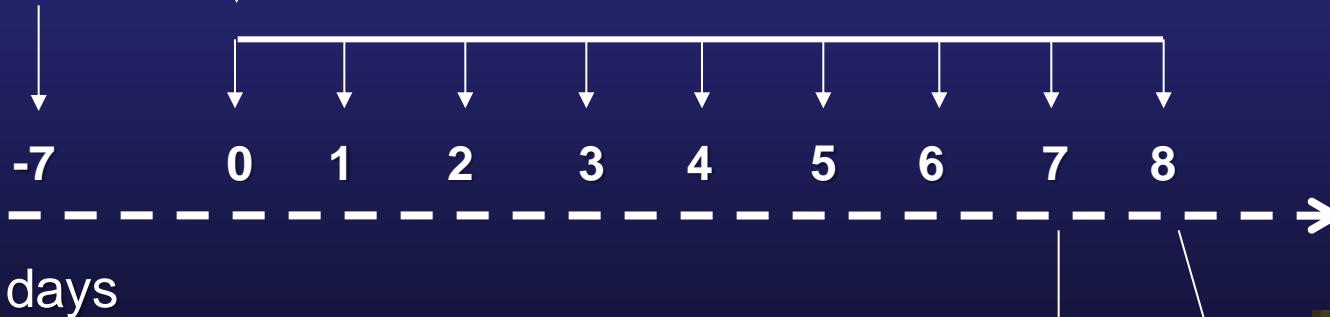
Charles River Lab.

Start  
Housing  
Animal  
randomization

- A Medicine /Control1
- B Medicine/Control 2
- C Medicine/Control 3
- D Medicine/Control 4
- E Medicine/Control 5
- F Medicine/Control 6
- G Medicine/Control 7
- H Medicine/Control 8



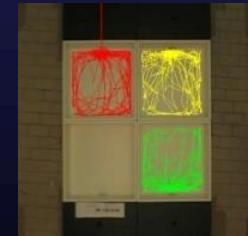
- ✓4CH
  - ✓5CH
  - ✓7CH
  - ✓9CH
  - ✓30C
  - ✓Control (placebo)
  - ✓Control (placebo)
  - ✓Buspirone
- (0.3 ml/day)



Experiments approved  
by ethical committee  
No pain, no artificial stress



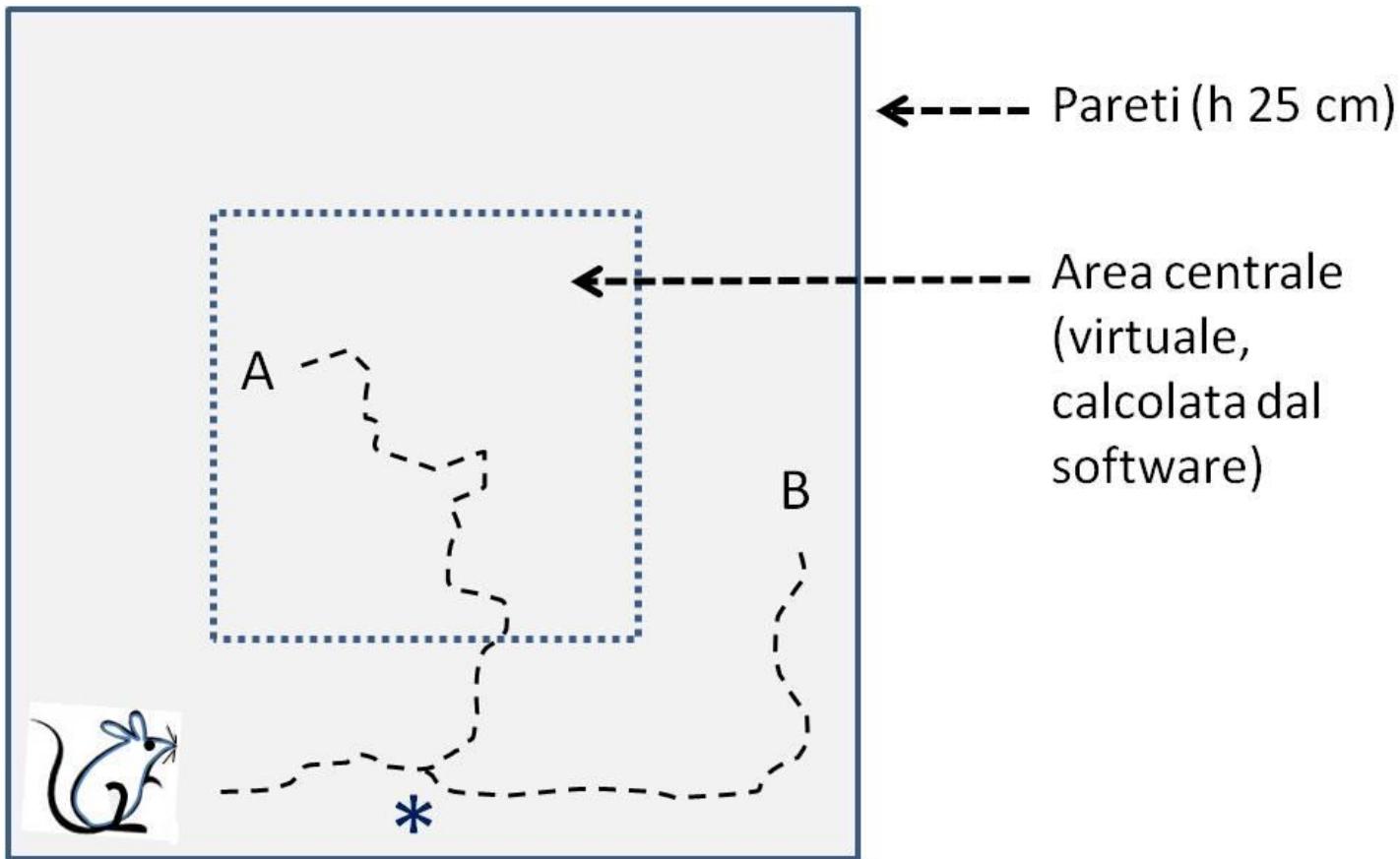
Open  
-Field  
Test



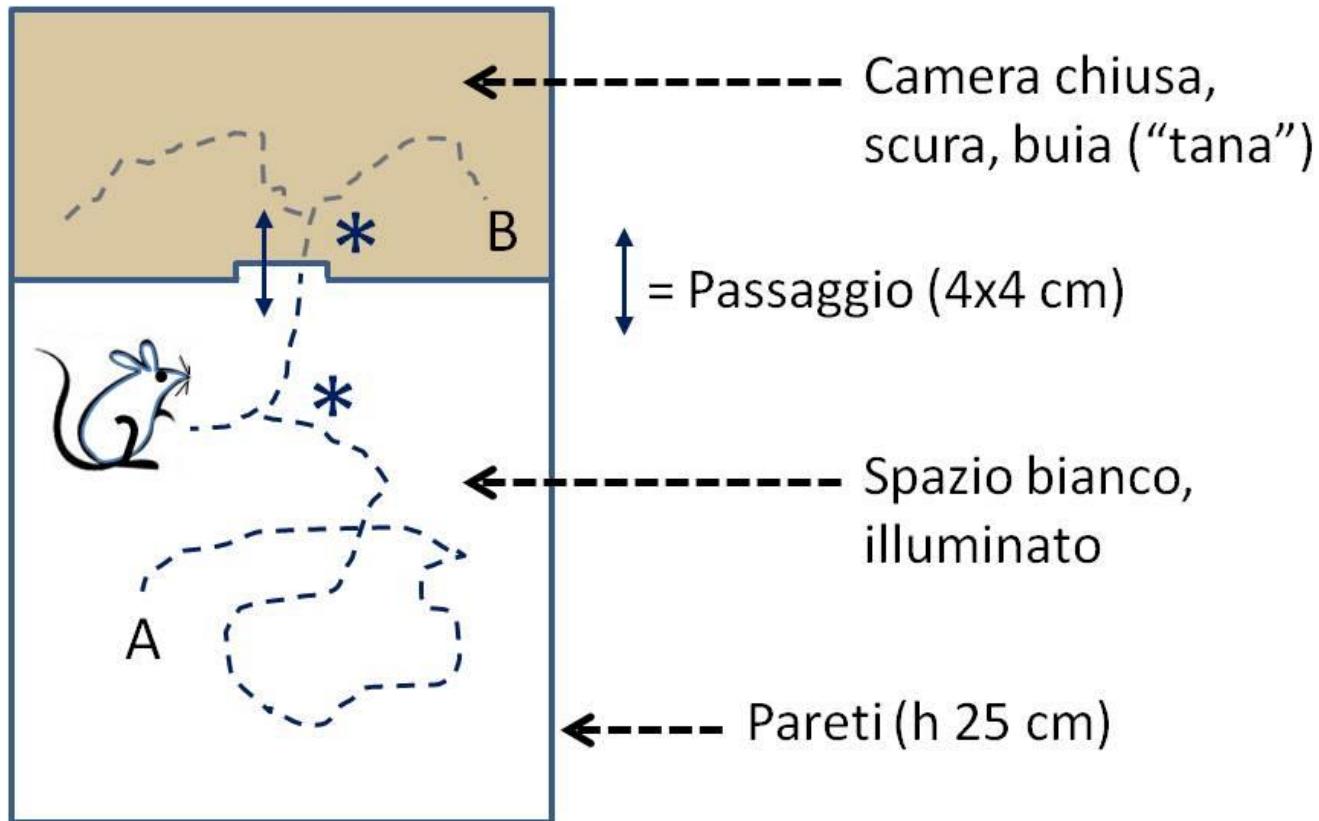
Light  
-Dark  
Test



# Test “Open Field”

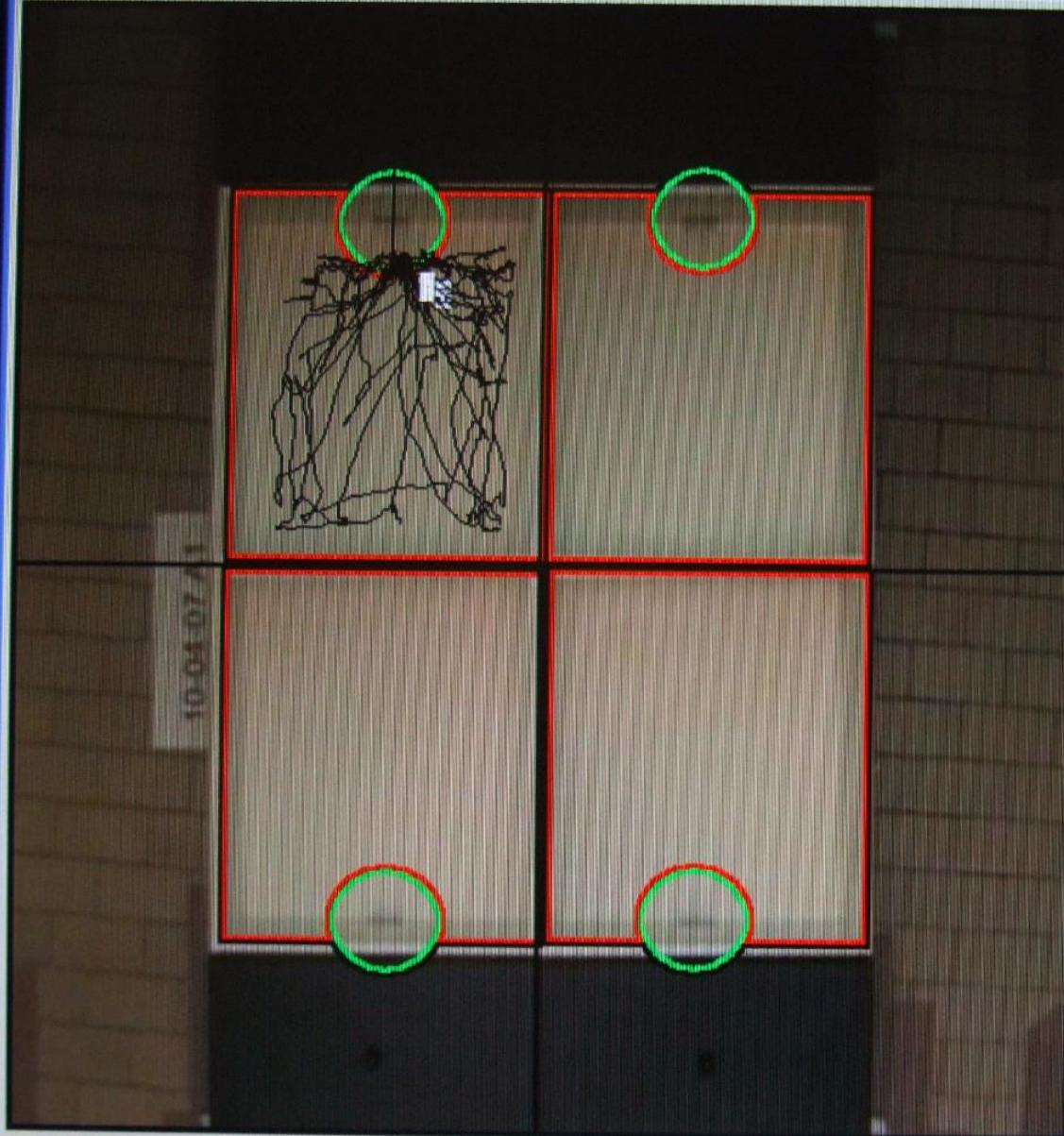


# Test “Light-Dark”





Tracking and Analysis with Smart software (Panlab Instruments)  
All the experiments were performed IN DOUBLE BLIND



## Current track information

5 - 070322LD-A1

Duration 0.04.55

File: C:\PROGRAMMI\PANLAB\SMART V2.5\0703

Tracks in file: 4

File Duration 0.19.29

## Analysis

## Current track

Intervals:

00.04.39

Start at 00.00.00	Duration 00.04.55	End at 00.04.55
<input type="button" value="Current Int."/> Full track	<input type="button" value="Next int."/> Stop	<input type="button" value="All int."/> Clear draw

## Drawing Mode

 Instantaneous Real time x 2

## All tracks

Go

## Report



# Gelsemium sempervirens



CAROLINA-JESSAMINE  
*Gelsemium sempervirens* (L.) Ait. f.  
LOGANIA FAMILY

## Possible analogy with (SOME) human symptoms

Repertorial Materia Medica: Result of search by index in all repertories: [root:WALK] AND [root:AMEL]

- ✓ MIND - ANXIETY - walking - air, in open – amel. 7
- ✓ MIND - ANXIETY - walking – amel. 8
- ✓ MIND - WALKING - air; in the open – amel. 20
- ✓ GENERALS - WALKING - air; in open – amel. 135
- ✓ GENERALS - WALKING - rapidly – amel. 19
- ✓ GENERALS - WALKING - slowly – amel. 15

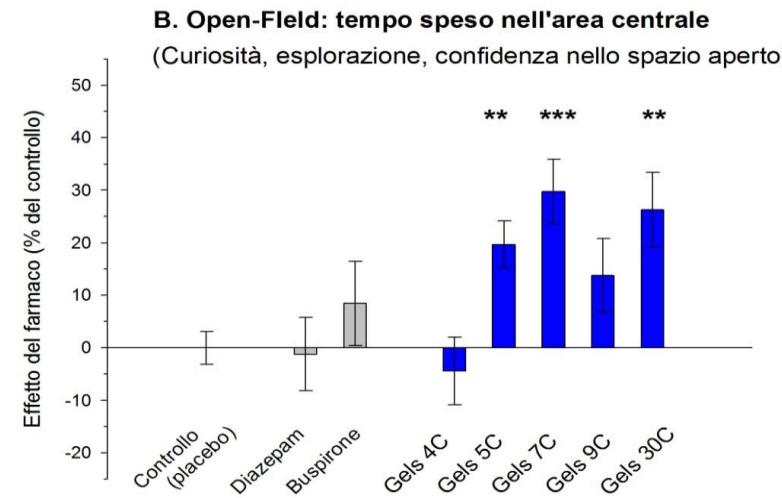
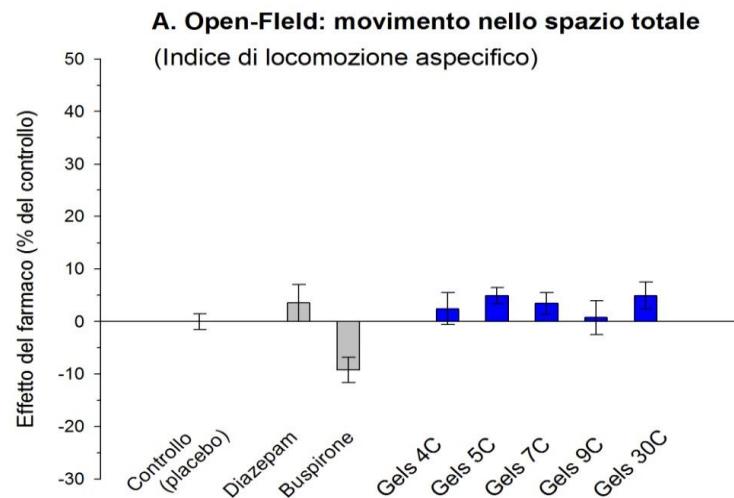
Materia Medica (Boenninghausen, Murphy):

- ✓ MIND: FEELING AS IN DANGER OF FALLING
- ✓ MIND: DREAD/DESIRE OF BEING ALONE
- ✓ MIND: IMPATIENT AND IRRITABLE
- ✓ MIND: NERVOUS DREAD OF APPEARING IN PUBLIC

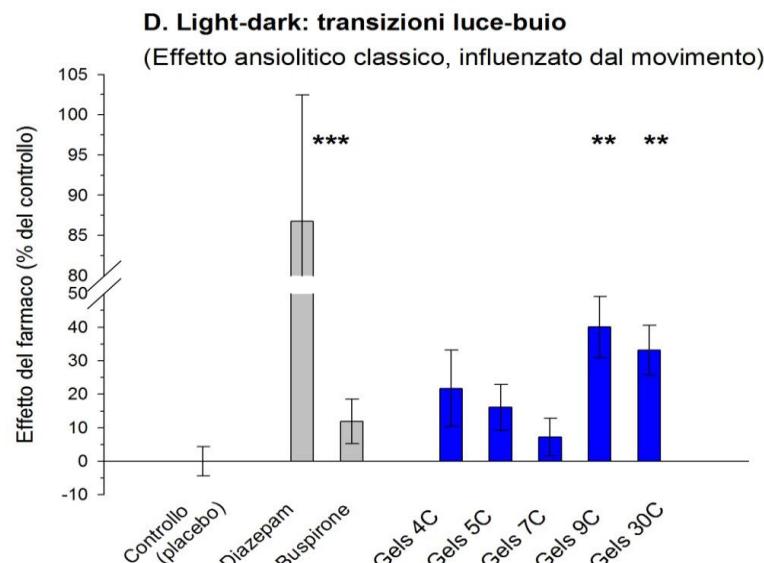
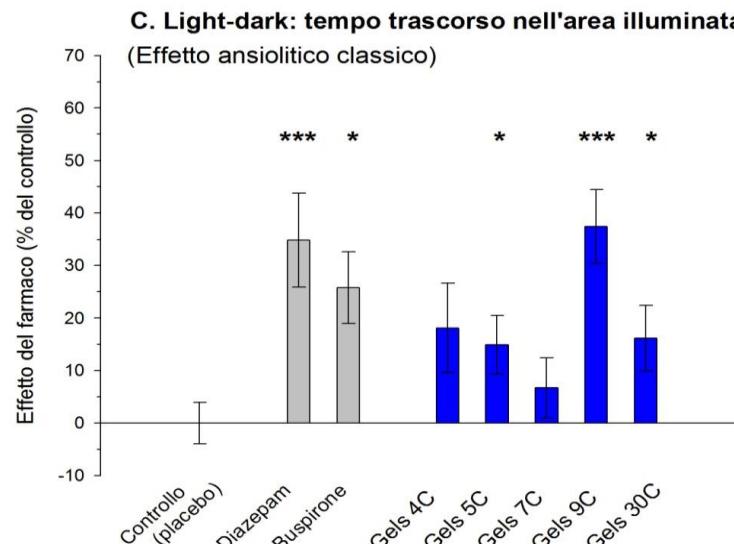


# POOLED DATA ANALYSIS (14 complete experiments)

## Evidence-Based Complementary and Altern. Med., 2012, in press)



\* $<0.05$   
\*\* $<0.01$   
\*\*\* $<0.001$



Fax reçu de : 0472164223  
 DULION  
 20 rue de la Libération  
 F - 69110 SAINTE-FOY-LES-LYON

15-05-08 09:42 Pg: 1  
 CERTIFICAT D'ANALYSE  
 N° LIMS : 62477

GELSEMIUM SEMPERVIRENS TM  
 G0B9.2TMGT1E

Date de fabrication  
 31 Mars 2008

Quantité  
 173.1 L

N° de Lot  
 TH0082

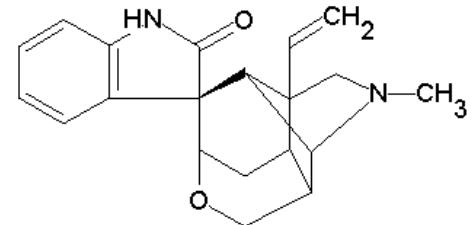
Date de contrôle  
 26 Avril 2008

N° de contrôle  
 C04046134

Partie Utilisée : Organes souterrains. (1/10)

Description : Liquide jaune ambré, odeur aromatique.

ANALYSES	SPECIFICATIONS	RESULTATS
CARACTERES Couleur	conforme	conforme
IDENTIFICATION Chromatographie sur couche mince	conforme	conforme
ESSAI Teneur en éthanol	60 - 70 % V/V	63.7 % V/V
Méthanol	<0.05 %	<0.05 %
2-Propanol	<0.05 %	<0.05 %
Résidu sec	>0.50 %	1.37 %
DOSAGE Teneur en gelsénine	>0.010 %	0.021 %



**Gelsemine**  
**Molecular Weight: 322,41)**

**Gelsemium 9CH: 3 molecole di gelsemina/ml  
 = 1 molecola per topo!!!!**  
**10,000,000,000,000,000 volte meno della dose standard  
 di buspirone or diazepam**





# KEY-NOTES



- **Gelsemium s. migliora alcuni indici comportamentali di ansietà nel topo. Nel modello “open-field” la sua efficacia è superiore ai farmaci allopatici buspirone e benzodiazepine**
- **Gli effetti concernono soprattutto: avversione a spazio aperto, tendenza a camminare lungo i muri, paura della luce, miglioramento dei sintomi col movimento**
- **Le alte diluizioni/dinamizzazioni sono più attive delle basse (!!!).**
- **Gelsemium s. NON ha effetti avversi sulla locomozione né provoca sedazione (come invece sembra fare il Buspirone)**





E anche  
noi!

Noi garantiamo  
che l'omeopatia  
non è acqua!

