Systemic Complexity for human development in the 21st century
Systemic Complexity : new prospects to complex system theory
7th Congress of the UES Systems Science European Union Lisbon, Dec. 17-19, 2008

ISBN: 978-972-9059-05-6

the origin/la source : http://www.afscet.asso.fr/resSystemica/Lisboa08/bricageWS1.pdf
the title/le titre : La Semi-Autonomie du Vivant : la Stratégie du Choc et le "Collège Invisible" , l'Origine du Cancer. Discussion: « Viruses are in all of us »
the author/l'auteur : **BRICAGE Pierre**
the pages/la pagination : **14 p.**
the year/l'année : **2008**
& the book/la publication: **7th Systems Science European Union Congress Proceedings, Human Autonomy and Systemics**
(dir. LORIGNY Jacques)

Cancer is a breaking of the cell's Association for the Reciprocal and Mutual Sharing of Advantages and DisAdvantages through an aggression that results in a lack of non-autonomy.

Pierre BRICAGE,
Social and Health Sciences Engineering
Faculté des **Sciences & Techniques**, Université de Pau & des Pays de l'Adour, 64000 Pau, France, Europe
pierre.bricage@univ-pau.fr

Abstract

Cancer (malignant neoplasm) may affect people at all ages, even foetuses, and risk tends to increase with age. **A group** of cells displays the traits of "uncontrolled growth and division **beyond the normal limits**", "invasion and destruction of adjacent tissues", and "spreading to other locations via lymph or blood". These properties differentiate cancers from benign tumours, which are **self-limited and stay under control**.

1. Cancer is the result of **the failure of the capacity of to be hosted, of the endophysiotope of our cells, in response to the failure of the hosting capacity of their ecoexotope, the organism.**

There is only one rule of survival : **"to transform disadvantages into advantages" and "to prevent advantages turning to disadvantages"**. When the ecoexotope is changing, a disadvantage can turn to an advantage and conversely (Dolberg & al. 1985). For stressed endangered cells, cancer is the way not to die.

Cancer is a response for best survival of damaged cells ! How does that work ?

The first cancerous agents that were found were viruses. Viruses appear to be **the second most important risk factor** for cancer development in humans, exceeded only by tobacco usage. The amount of cancers linked to AIDS or other viral sources is continuously increasing (Routes & al. 2000).

The genome of all organisms is inhabited by viral genomes. The presence of these controlled risks is usually an advantage for the survival of both the inhabited cells and their inhabitant viruses (Feng & al. 2008) : the genetic material of a cancer virus is inserted into the host cell genome without any production of virus particles and with no cell death.

2. **Cancer is a disease of disfunctioning cellular genes due to unwanted viral gene expression.**

How, when and why do these silenced killing dangers reborn ?

3. **Cancer is induced by agents of cellular provirus lysis : radiations & chemicals altering DNA.**

The same ones are used in chemotherapy and radiotherapy. Some dose-dependence effects and threshold concentration dependencies may impaired or reversed the activity of protective or curative agents.

The stability of a cancerous cell is in the key fact that *the virus does not kill the cell* and reciprocally *the cell does protect the virus of the killing by other cells*. The result is the merging of a new spatial and temporal network, a new mode of integration, into a transformed Association for the Mutual and Reciprocal Sharing of Advantages and of Disadvantages, within the cell… an advantage for the "new" cell but a dis-advantage for the organism inside which the new re-autonomy of the cancer cells disrupts the previous steady-state's controls.

4. **In order that one survives, it is necessary that the others survive first, and reciprocally.**

Like that of a bacterium infected with a phage, the fate of a cancer cell is depending on the interactive percolation with its invading virus (Bricage 2005B). That indeed explains the heterogeneity of a disease (cancer or AIDS), its evolutions and the diversity of the potential hosts:

"the way is, both, the cause and the consequence of the history."

5. **The cancer is a disease of the breakage of the Association between the "parceners".**

Usually the breakage of the Association for the Reciprocal and Mutual Sharing of Advantages and Dis-Advantages (ARMSADA) leads to apoptosis (Bricage 2005B), but sometimes to cancer (Ishikawa & al. 2006).

La semi-autonomie du vivant, la stratégie du choc et le collège invisible : l'origine du cancer.

Résumé

1. **Les cellules d'un organisme sont semi-autonomes**.

Leur survie contribue à celle de l'organisme, qu'elles constituent et qui en retour les héberge.

L'endophysiotope de l'organisme est l'écoexotope de survie de l'endophysiotope des cellules.

Cette **structure ergodique** est apparue au cours de l'évolution du vivant **par la mise en place d'associations à avantages et inconvénients réciproques et partagés** entre partenaires (Bricage 2001).

La cellule eucaryote a ainsi émergé de la fusion, de monères et de virus, **juxtaposés et emboîtés** en un nouveau Tout (Bricage 2005B).

2. **Toute cellule contient dans son génome des génomes viraux juxtaposés et emboîtés**.

Ces dangers contenus, intégrés, sont indispensables au bon fonctionnement cellulaire.

3. **À la suite d'une violence ces dangers contenus peuvent être libérés.** (Bricage 2004)

Habituellement la cellule meurt par apoptose. Mais, qu'il soit physique, chimique, physiologique ou psychologique, **le choc peut donner naissance à** une cellule cancéreuse. Quand la capacité d'accueil de son écoexotope de survie ne peut plus assurer durablement sa survie, **la seule issue** de la cellule pour survivre est de changer la capacité d'être accueilli de son endophysiotope. Elle devient cancéreuse. Elle **récupère une autonomie**, de survie et de reproduction, **incontrôlée** et incontrôlable.

4. **Le cancer résulte d'un dysfonctionnement de l'expression d'un "collège invisible".**

De nombreux acteurs de la cancérisation sont des virus. Or, les mêmes chocs qui sont responsables de la libération de virus endogènes sont utilisés pour tenter de détruire les cellules cancéreuses transformées par des gènes viraux exogènes, ... qui y ont déjà résisté, alors que les cellules normales y sont sensibles.

Survivre c'est transformer des inconvénients en avantages
et éviter que des avantages deviennent des inconvénients.

5. **Pour que l'un survive, il faut d'abord que l'autre survive et réciproquement.**

Au cours de l'évolution, seules se survivent les associations à avantages et inconvénients réciproques et partagés qui rendent les partenaires **plus dépendants** les uns des autres mais **plus indépendants** de leur écoexotope de survie (Bricage 2005A). Elles émergent par **la perte simultanée par tous** les partenaires de la capacité de détruire tous les autres.

À tous les niveaux d'organisation, le cancer résulte d'une déstructuration, spatiale ou temporelle, d'une Association à Avantages et Inconvénients Réciproques et Partagés, contrat synallagmatique, établi entre partenaires de niveaux d'organisation différents, pour le meilleur et pour le pire.

References

Bricage P. (2001) Pour survivre et se survivre, la vie est d'abord un flux, ergodique, fractal et contingent, vers des macro-états organisés de micro-états, à la suite de brisures de symétrie. Atelier AFSCET "Systémique & Biologie", Paris, Institut International d'Administration Publique, 11 p. http://www.afscet.asso.fr/ergodiqW.pdf

Bricage P. (2004) La Nature de la Violence dans la Nature. 9 p. **Res-Systemica** n° 4.

Bricage P. (2005A) La durabilité contractuelle du vivant. Anthropo-politique et gouvernance des systèmes complexes territoriaux , Presses de l'Université des Sciences Sociales de Toulouse, p. 111-117.

Bricage P. (2005B) The Cell originated through Successive Outbreaks of Networking and Homing into Associations for the Mutual and Reciprocal Sharing of Advantages and of Disadvantages, between the partners, with a benefit only for their wholeness. 6th ECSS (Paris, France). 11 p. & 55 p. http://miniilen.com/?AheGujV2gC & http://miniilen.com/?MKDkk2vSNv

Dolberg D.S. & al. (1985) Wounding and Its Role in RSV-Mediated Tumor Formation. Science 250: 676-679.

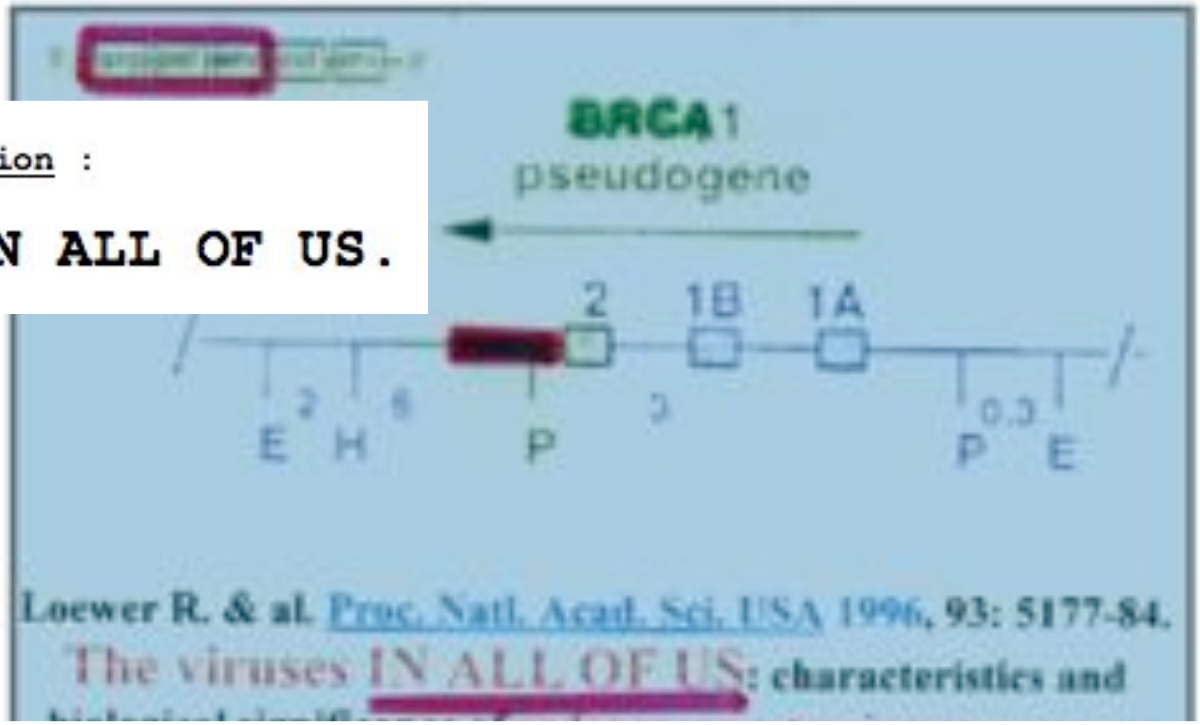
Feng H. & al. (2008) Clonal Integration of a Polyomavirus in Human Merkel Cell Carcinoma. Science 5866: 1096-1100.

Ishikawa K. & al. (2008) ROS-Generating Mitochondrial DNA Mutations Can Regulate Tumor Cell Metastasis. Science 5876: 661-664.

Routes J.M. & al. (2000) Dissimilar Immunogenicities of Human PapillomaVirus E7 and Adenovirus E1A Proteins Influence Primary Tumor Development. Virology 277: 48-57.

Discussion :

VIRUSES ARE IN ALL OF US.



Loewer R. & al. Proc. Natl. Acad. Sci. USA 1996, 93: 5177-84.
The viruses IN ALL OF US: characteristics and

We have in our genome
a viral heritage, that is required for tissue specific differentiation.

The gag, pol & env genes of retroviruses are inhabitants of pseudo-genes.
And pseudo-genes are involved in CANCER expression.

Ting C.N. & al. Endogenous retroviral sequences
are REQUIRED for tissue-specific expression
of a human salivary amylase gene.
Genes Dev. 1992, 6:1457-65.

Structure and phylogenetic analysis of
an endogenous retrovirus inserted into the
Human Growth Factor gene pleiotrophin.
Schulte A.K. & A. Wellstein.
J. Virology 1998, 72(7): 6065-6072.

RETROVIRUSES
are inserted into
RESTRICTED TIME- and TISSUE- DEPENDENT EXPRESSED GENES.

TRUE VIRAL GENOMES
are located into our chromosomes.

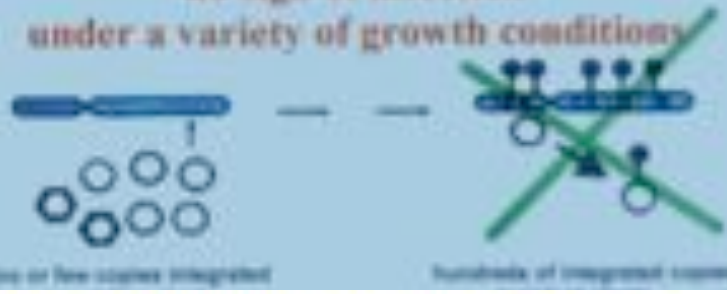
They are defective & non-infective: SILENCED,
having new promoters they are CONSTRAINED.
BUT they may be expressed in tumour cells.

non-infective, replication defective retroviruses
with 86% homology to HERV-E

of ANCIENT origins, SILENCED

Endogenous viral sequences and their potential contribution
to heritable virus resistance in plants.
Mette M.F. & al., The EMBO Journal 2002, 21(3): 461-469.

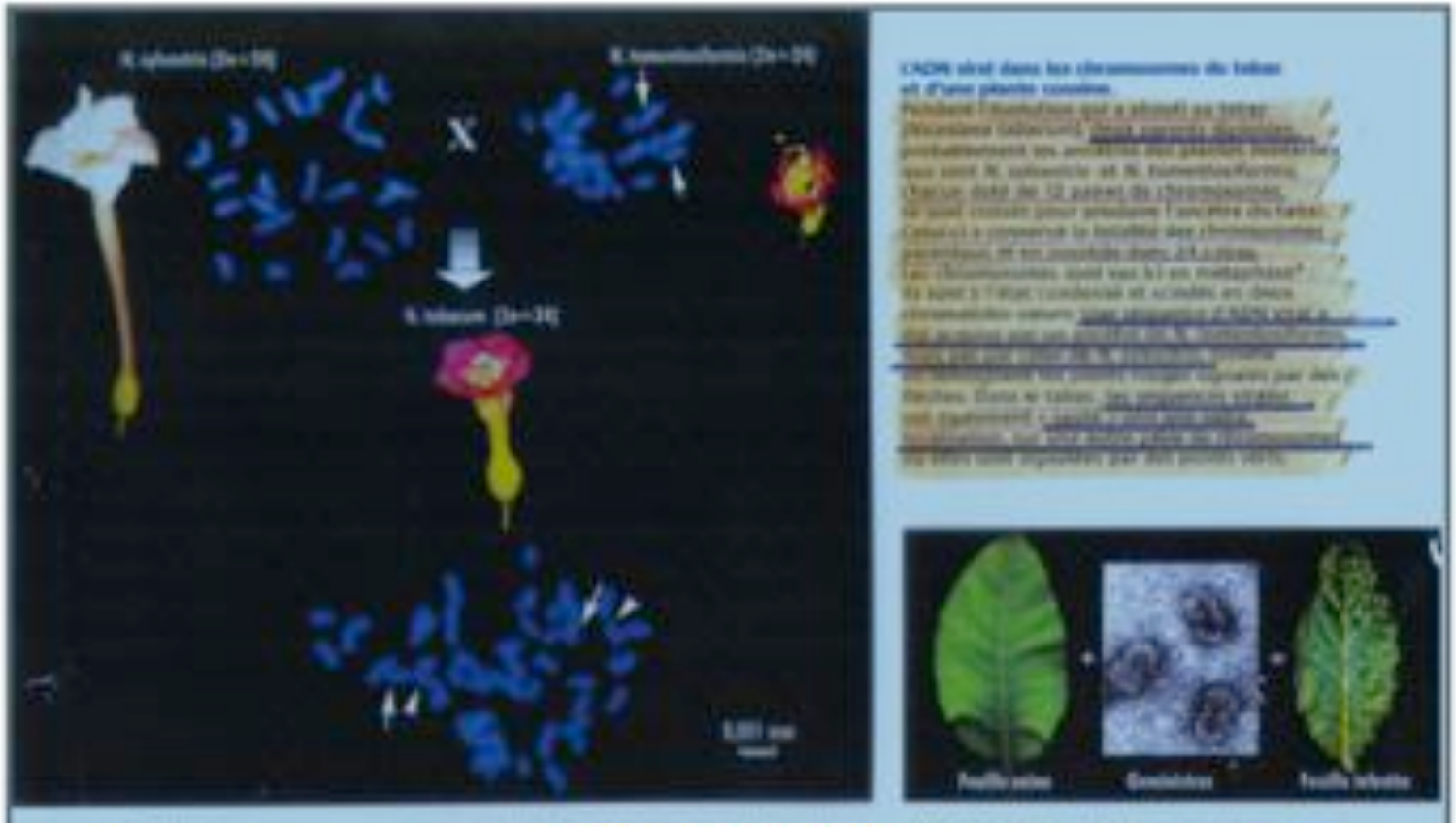
endogenous para-retroviruses
derived both from single-stranded
& double-stranded DNA viruses
with 91-98% homology
inserted into plant chromosomes
normally silent
providing viral immunity
no sign of infection
under a variety of growth conditions



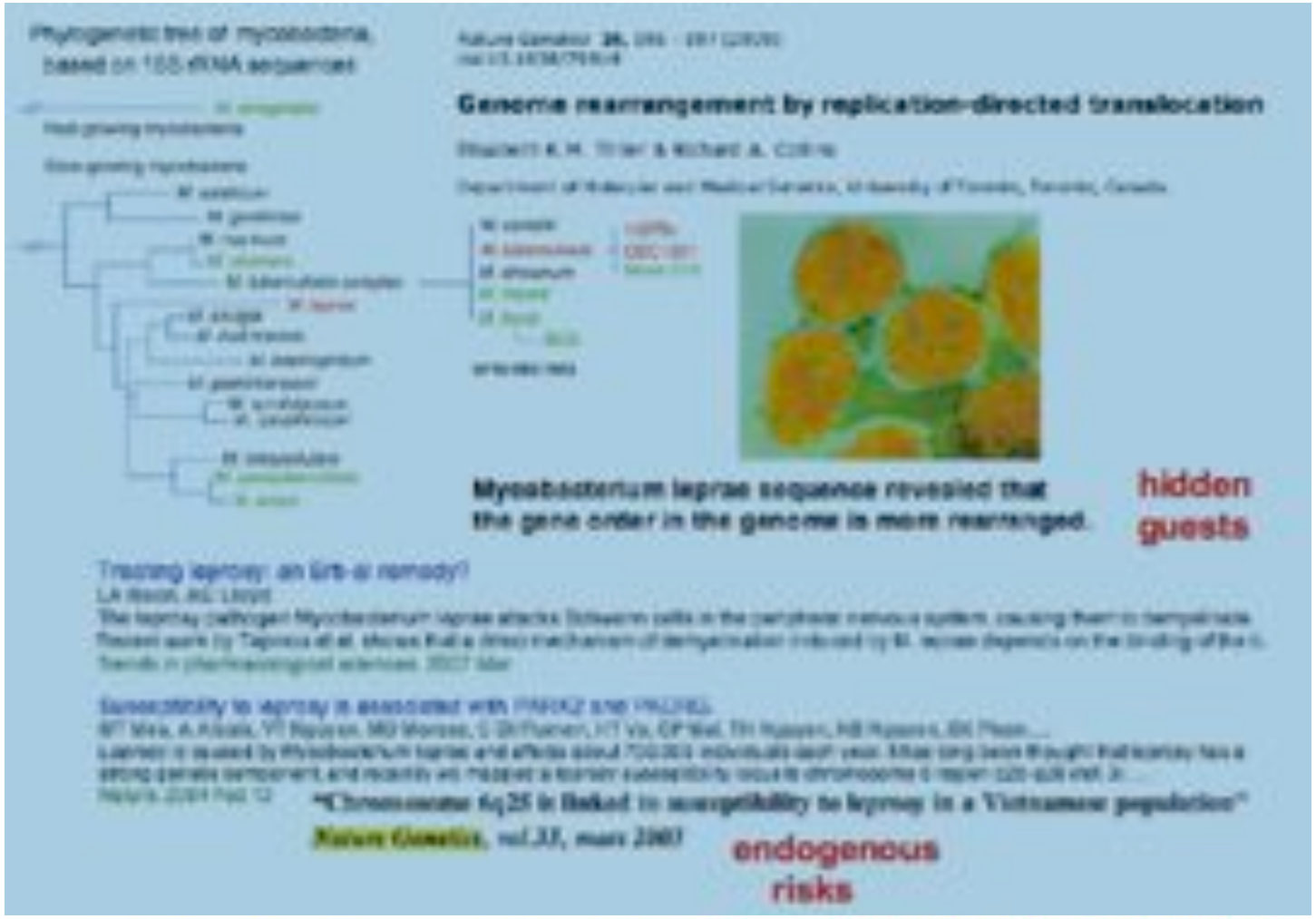
ENDOGENOUS viral sequences are responsible from VIRAL RESISTANCES in plants.
DNA VIRUSES with more than 90% homology with free ones are inserted into plant chromosomes.
They provide, through their silenced survival and coordinated reproduction WITHIN the cell
and WITH the cell, an immunity against the same viruses relatives.
These integrated, silenced but present and still alive, ancient free viruses
remain active and may be de-constrained, through inter-species hybridization for example.

in the human genome
at least 10,000 copies of viruses of other ones

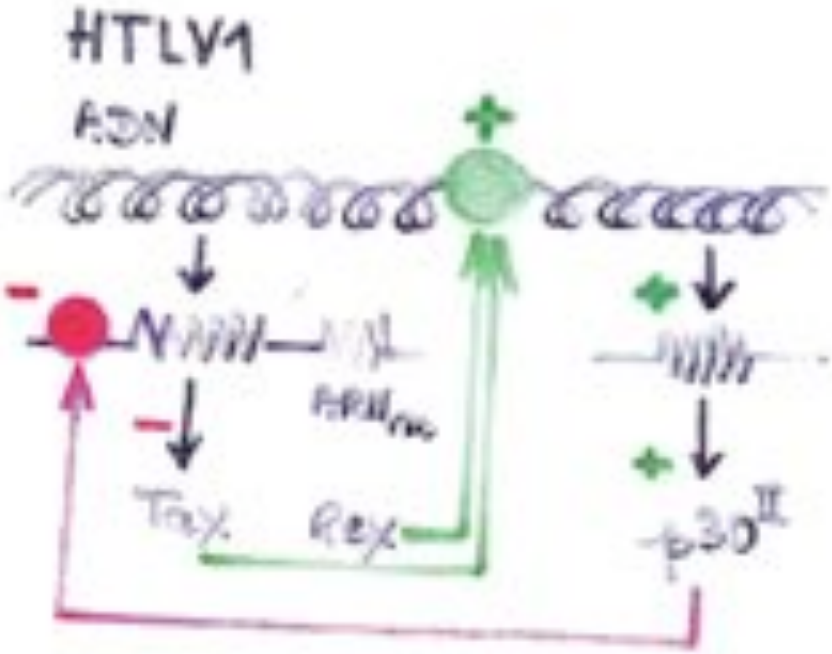
de-constrained through hybridization
or in vitro propagation

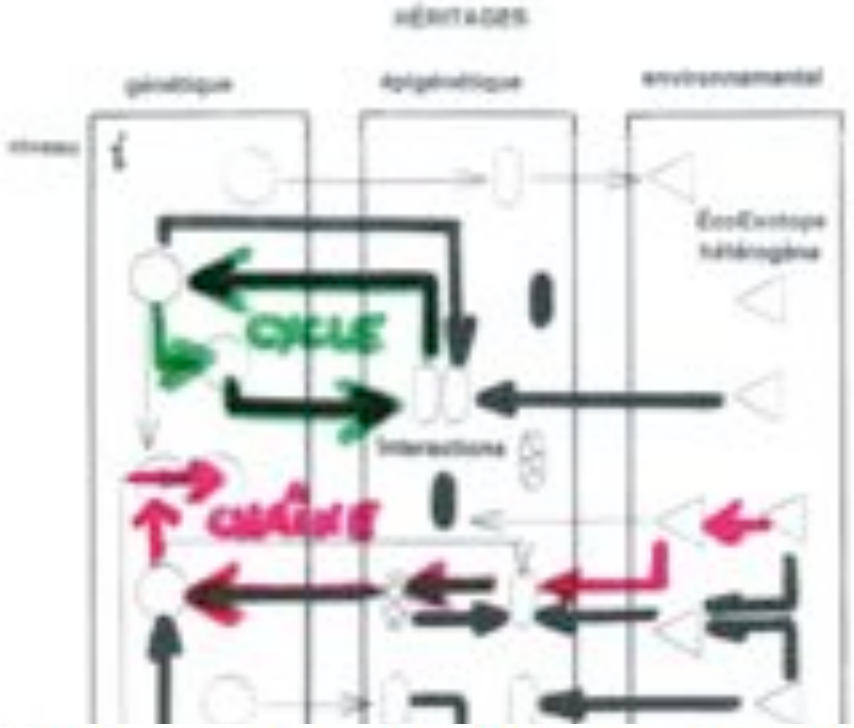


The tobacco plant's genome is containing VIRUSES INHERITED from the genome of one ancestor species.
This DNA has both jumped from a locus to an other with its multiplication into the genome.
It gives to the plant host an immunity against the same viruses.



Mycobacterium leprae is also containing HIDDEN ENDOGENOUS RISKS
that are responsible of the rearrangement of its genome and that also allow its survival
through the control of the type of relationship between the bacterium and its host.

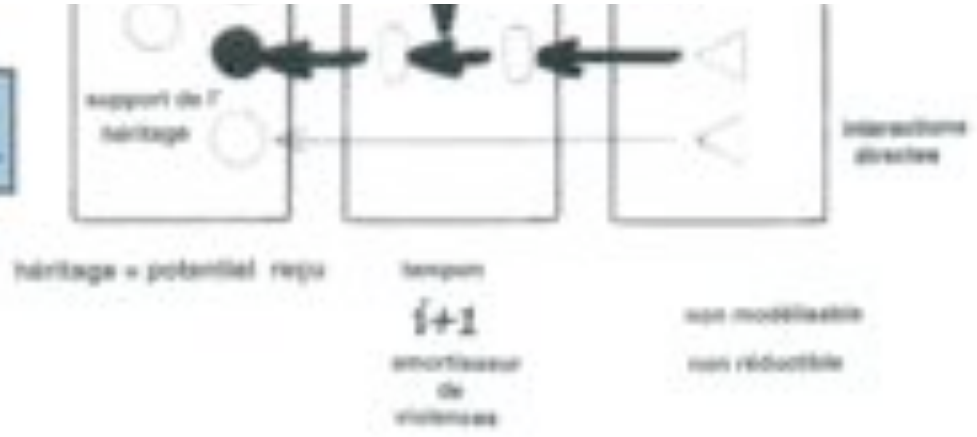


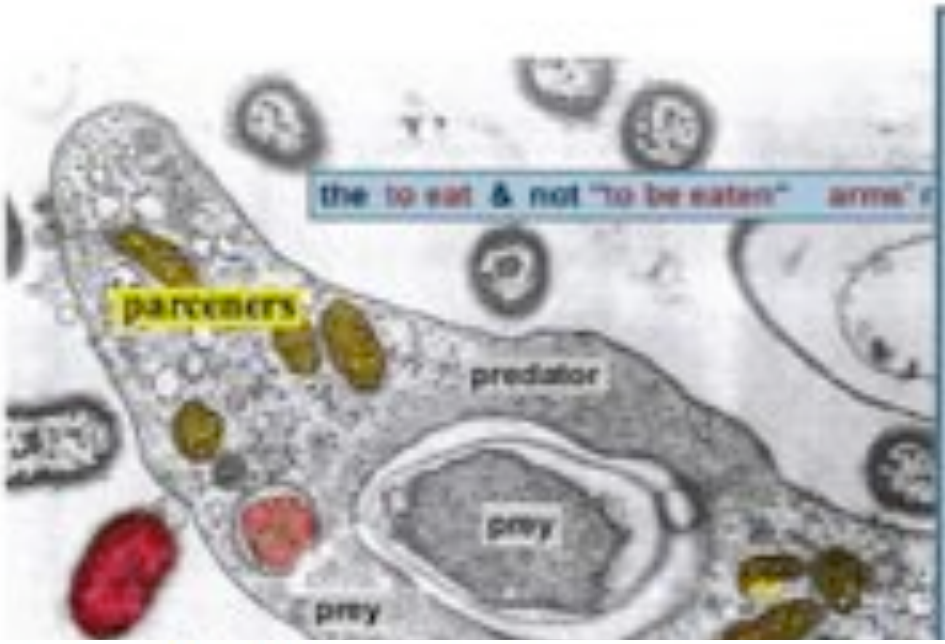


The RELATIONSHIP between genes and their regulated expression, in HTLV1, are the result of interactions between the ENDOphysiotope and the ecoEXOtope of the virus.

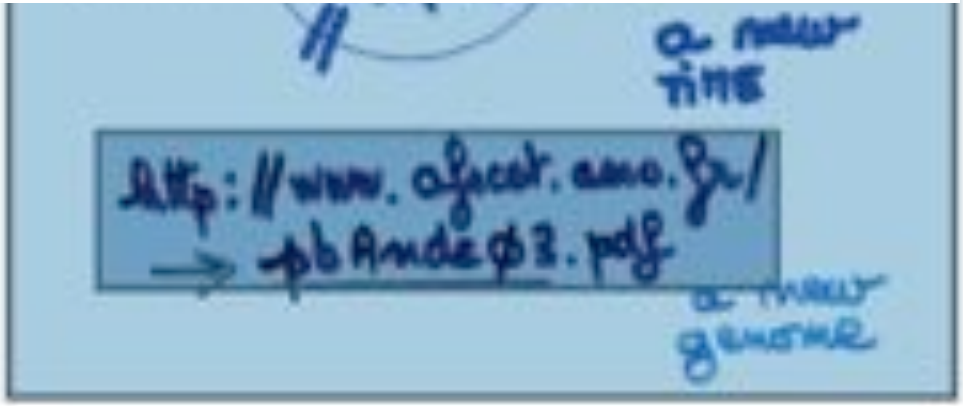
DATA are available on line at: http://www.afscet.asso.fr/heritage.pdf

DATA are available on line at: http://www.afscet.asso.fr/resSystemica/Crete02/bricage.pdf



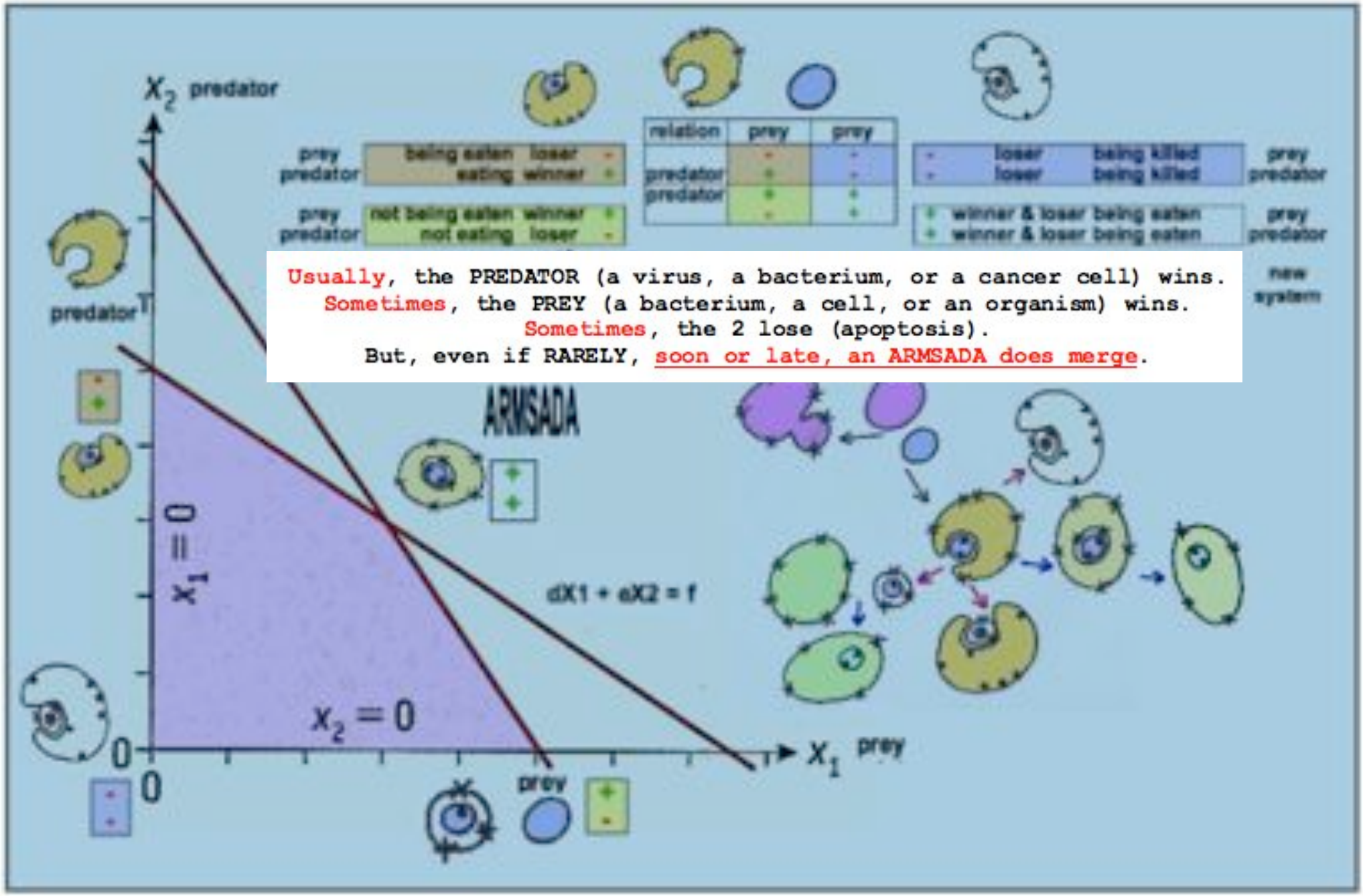


There is **NO DIFFERENCE** between an amoeba and its preys and a bacterioPHAGE and its preys.
The INTEGRATION Of the phage into the genome of the bacterium gives rise to A NEW WHOLE
in which the virus survives INTO A NEW SPACE and INTO A NEW TIME.
That was the same with the bacteria that NOW are the mitochondria into the amoeba.
The prophage is not a PROphage but a gene parcener into the bacterial genome,
like the mitochondria are organelle parceners constitutive of the cell's amoeba.
DATA are available on line at: http://www.afscet.asso.fr/pbAnde03.pdf



During its LIFE CYCLE,
a cell, usually, is FIRST a stem cell S, that multiplies giving rise to a clone of cells C,
that differentiate D, and finally die.
Only any cells of the germinal lineage eventually survive from a generation to the following one.
BUT during the way of its life, the cell may be infected by a virus V,
virus which, usually, lyses the hosting cell L.
BUT, through apoptosis A, the suicide of the cell kills the virus.
BUT, if the cell does not suicide itself, a tumour cell T may merge.
DATA are available on line at: http://www.afscet.asso.fr/resSystemica/Paris05/bricage.pdf

A tumour cell may also merge from a STRESSED CELL.
I have assumed that there is "a special type of interactions" O, in which
no virus is produced, no cancer cell is merging, BUT A NEW PHENOTYPE of cell E,
AN EMERGENT WHOLENESS in which the cell is both RESISTANT TO VIRUS AND CANCER.


X_2 predator
predator
$X_1 = 0$
$X_2 = 0$
0
0
X_1 prey
prey
dX1 + eX2 = f
ARMSADA
relation prey prey
predator
predator
prey predator being eaten loser
eating winner
prey predator not being eaten winner
not eating loser
loser being killed prey
loser being killed predator
winner & loser being eaten prey
winner & loser being eaten predator
new system
Usually, the PREDATOR (a virus, a bacterium, or a cancer cell) wins.
Sometimes, the PREY (a bacterium, a cell, or an organism) wins.
Sometimes, the 2 lose (apoptosis).
But, even if RARELY, soon or late, an ARMSADA does merge.

Systemic Complexity for human development in the 21st century

Systemic Complexity : new prospects to complex system theory

7th Congress of the UES Systems Science European Union Lisbon, Dec. 17-19, 2008

Cancer is a Breaking of the Cell's Association for the Reciprocal and Mutual Sharing of Advantages and Disadvantages Through an Aggression that Results in a Lack of Non-Autonomy.

CANCER Curative Vaccine

the original source :
http://www.miniliens.com/?aUHBBpc46 (file: UESlisboaPBcancerRef.pdf)

the title/le titre : *CANCER is a Breaking of the Cell's Association for the Reciprocal and Mutual Sharing of Advantages and Disadvantages Through an Aggression that Results in a Lack of Non-Autonomy. Complementary Data, Figures & References.*
the author/l'auteur : Pierre BRICAGE
the pages/la pagination : 26 p.
the year/l'année : 2008
& the book/la publication: 7th Systems Science European Union Congress Proceedings. Human Autonomy and Systemics Workshop, Lisboa, Portugal.

Associations for the Reciprocal and Mutual Sharing of Advantages and Disadvantages: Applicative Insights in Prevention or Cure of AIDS, Cancer and Leprous Diseases.

HIV induced AIDS Curative Vaccine

the original source : http://miniliens.com/?[illegible] (file: UESlisboaPBaidsRef.pdf)

the title/le titre : *Associations for the Reciprocal and Mutual Sharing of Advantages and DisAdvantages: Applicative Insights in Prevention or Cure of (HIV induced) AIDS. Complementary Data, Figures & References.*
the author/l'auteur : Pierre BRICAGE
the pages/la pagination : 21 p.
the year/l'année : 2008
& the book/la publication: 7th Systems Science European Union Congress Proceedings communication # 9, Lisboa, Portugal.

the original source : http://miniliens.com/?[illegible] (UESlisboaPBleproseRef.pdf)

the title/le titre : *Associations for the Reciprocal and Mutual Sharing of Advantages and DisAdvantages: Applicative Insights in Prevention or Cure of AIDS, Cancer and Leprous Diseases. Complementary Data, Figures & References. Leprosy, tuberculosis & Mycobacteria*
the author/l'auteur : Pierre BRICAGE
the pages/la pagination : 13 p.
the year/l'année : 2008
& the book/la publication: 7th Systems Science European Union Congress Proceedings. communication # 9, Lisboa, Portugal.

FIND ME ONLINE.

If you will search on line with the **KEY WORDS**:
"stem cell", "curative vaccine" & HIV (in English), or
"cellule souche", "vaccin curatif" & VIH (en français), you will find
only 2 references in 2005, and 8 references in 2008,
BUT all derived from the 2 in French.

...ymbiosisRef.pdf)
...ual Sharing of Advantages
...ferences. ARMSADA "From
...hole".

...Congress Proceedings.
communication # 9, Lisboa, Portugal


Résultats 1 - 7 sur 7 pour "stem cell" HIV 2005 "curative vaccine".
Résultats 1 - 2 sur 2 pages en français pour "cellules souches" VIH 2005 "vaccin curatif".
Résultats 1 - 8 sur 8 pour "stem cells" HIV 2008 "curative vaccine".
7th Congress of the UES
European Systems Union
Lisbon
Dec. 17-19, 2008
Congress Proceedings
FCT
AFSCET
REN
APOCOSIS
© Copyright 2008 APOCOSIS
ISBN: 978-972-9059-05-6
Autorun CD | Just insert in your CD-ROM drive | For Windows computers
Google
Résultats 1 - 4 sur 4 pour "stem cells" HIV 2007 "curative vaccine".
Résultats 1 - 3 sur 3 pages en français pour "cellules souches" VIH 2007 "vaccin curatif".
Résultats 1 - 5 sur 5 pour "stem cells" HIV 2006 "curative vaccine".

UES Lisboa 2008 **CANCER CURATIVE VACCINE**

site AFSCET : CD UES Congress Proceedings (ISBN: 978-972-9059-05-6) & Res-Systemica (Online Publications)
1. texte écrit CANCER & autonomie http://www.afscet.asso.fr/resSystemica/Lisboa08/bricage1.pdf
2. texte écrit AIDS & CANCER curative vaccines http://www.afscet.asso.fr/resSystemica/Lisboa08/bricage2.pdf

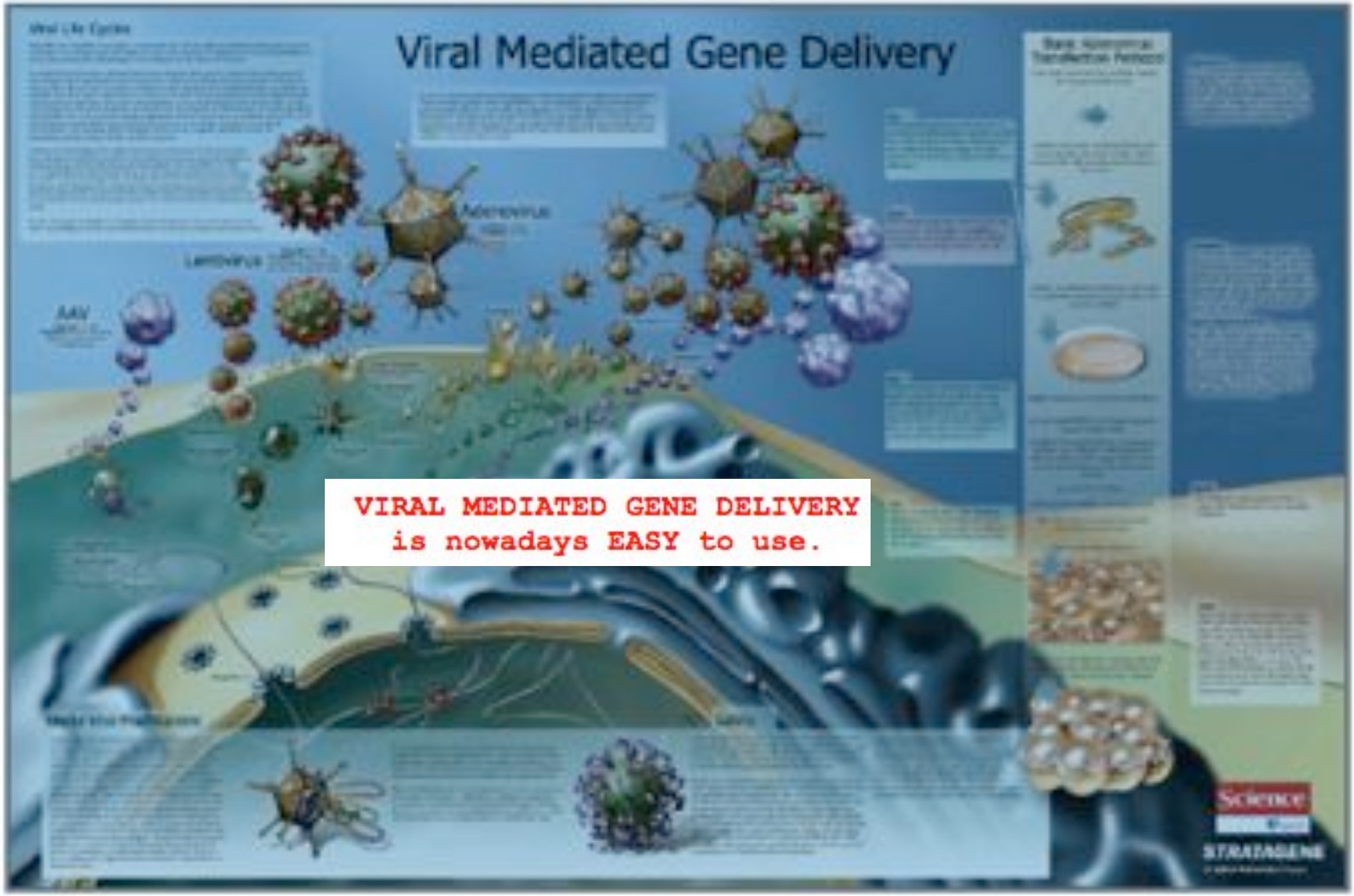
Atelier Lorigny Res-Systemica http://www.afscet.asso.fr/resSystemica/Lisboa08/bricageWS1.pdf
exposé Lorigny http://www.abbayeslaiques.asso.fr/BIOsystemique/bibliographie/CancerLorignyTalk.pdf
global talk Discussion http://www.afscet.asso.fr/resSystemica/Lisboa08/pbdiscussion.pdf

site ALBA : COMPLEMENTARY DATA & REFERENCES (Creative Commons Licence ADVANCED ON LINE PUBLICATIONS)
talk CANCER http://www.abbayeslaiques.asso.fr/BIOsystemique/bibliographie/pbCANCERtalk.pdf
talk CURATION http://www.abbayeslaiques.asso.fr/BIOsystemique/bibliographie/pbAPPLICATIVEtalk.pdf
compléments CANCER UESlisboaPBcancerRef.pdf http://www.minilien.com/?oUtHBBpz46
compléments AIDS UESlisboaPBaidsRef.pdf http://minilien.com/?USaw1HHJ4Z
compléments SYMBIOSIS UESlisboaPBsymbiosisRef.pdf http://minilien.com/?gEHtVdd60o
compléments LEPROSY UESlisboaPBlepraeRef.pdf http://minilien.com/?iUZluv4lpL
compléments ARMSADA :
http://www.abbayeslaiques.asso.fr/BIOsystemique/ANLEA05PauPB.pdf
http://www.abbayeslaiques.asso.fr/BIOsystemique/HDRarmsada.pdf
http://www.abbayeslaiques.asso.fr/BIOsystemique/PauMCX20.pdf
http://www.abbayeslaiques.asso.fr/BIOsystemique/Survie.pdf

pour rappels :

UES Paris sept. 2005 **AIDS CURATIVE VACCINE**

sur Res-Systemica (Creative Commons Licence ON LINE PUBLICATIONS)
http://www.afscet.asso.fr/resSystemica/Paris05/bricage.pdf
http://www.afscet.asso.fr/resSystemica/Paris05/bricage2.pdf
http://www.afscet.asso.fr/resSystemica/Paris05/bricage3.pdf
compléments sur ALBA (Creative Commons Licence ON LINE PUBLICATIONS)
http://www.abbayeslaiques.asso.fr/BIOsystemique/bibliographie/CELLreferencesPB.pdf
http://www.abbayeslaiques.asso.fr/BIOsystemique/bibliographie/METAreferencesPB.pdf


Viral Mediated Gene Delivery
VIRAL MEDIATED GENE DELIVERY
is nowadays EASY to use.
Science
STRATAGENE