

HIV/AIDS at 30: *Back to the Future*
BHIVA / Wellcome Trust Multidisciplinary Event to mark World AIDS Day 2011

British HIV Association **BHIVA** Supported by **wellcome**trust

**HIV/AIDS at 30:
*Back to the Future***
*Multidisciplinary Event
to mark World AIDS Day*

1500–2045
Thursday 1 December 2011
Wellcome Collection Conference Centre
London

In support of World AIDS Day

In partnership with   HIV 

British HIV Association (BHIVA) 2011

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Professor Jonathan Weber
Imperial College London

Thursday 1 December 2011, Wellcome Collection Conference Centre, London



Dante Gabriel Rossetti

The Holy Grail: where is the cure?

Jonathan Weber

Imperial College
London

The Berlin patient

BRIEF REPORT

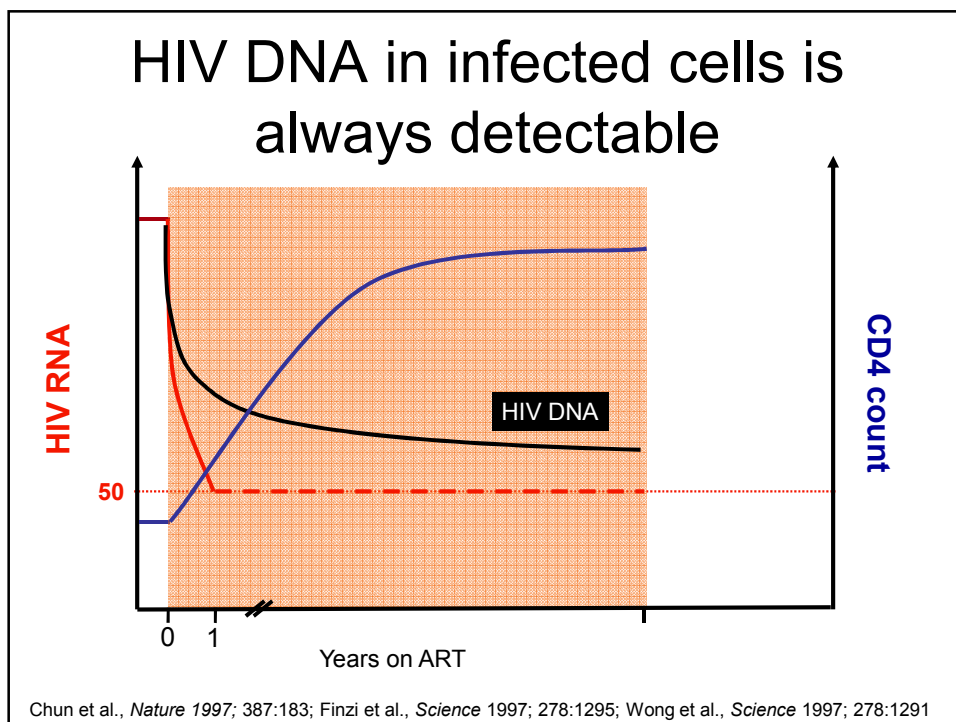
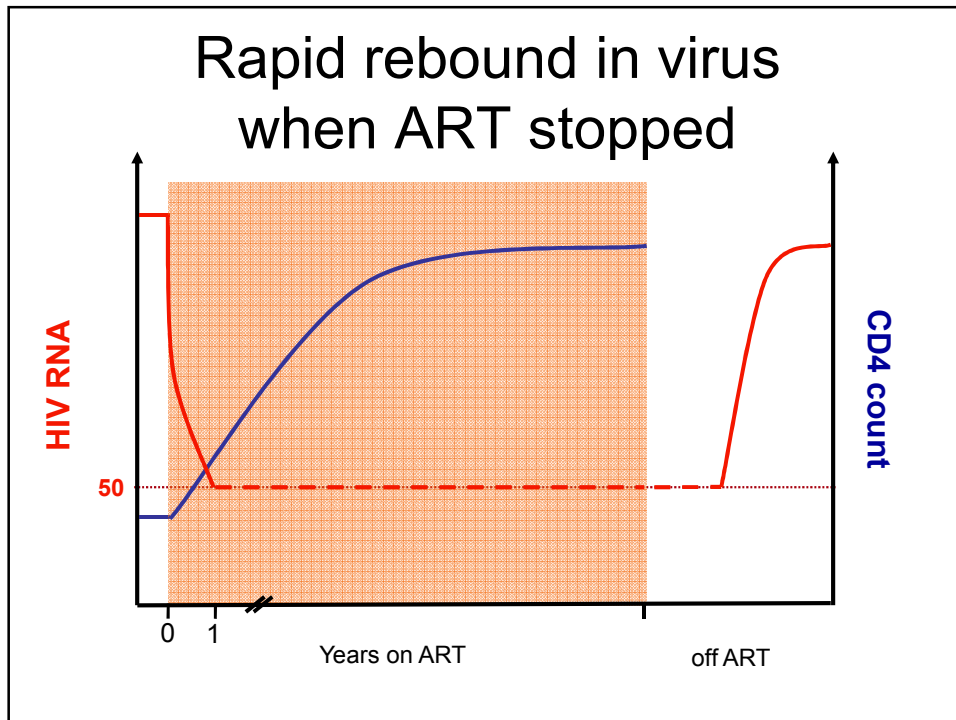
Long-Term Control of HIV by *CCR5* Delta32/ Delta32 Stem-Cell Transplantation

Gero Hütter, M.D., Daniel Nowak, M.D., Maximilian Mossner, B.S.,
Susanne Ganepola, M.D., Arne Müßig, M.D., Kristina Allers, Ph.D.,
Thomas Schneider, M.D., Ph.D., Jörg Hofmann, Ph.D., Claudia Kücherer, M.D.,
Olga Blau, M.D., Igor W. Blau, M.D., Wolf K. Hofmann, M.D.,
and Eckhard Thiel, M.D.

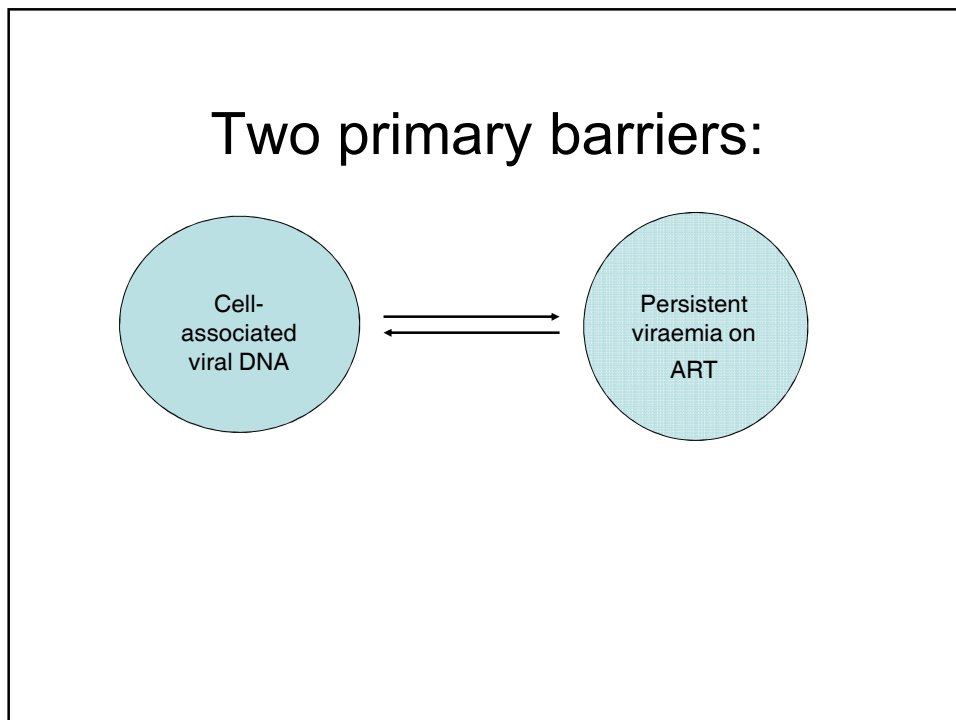
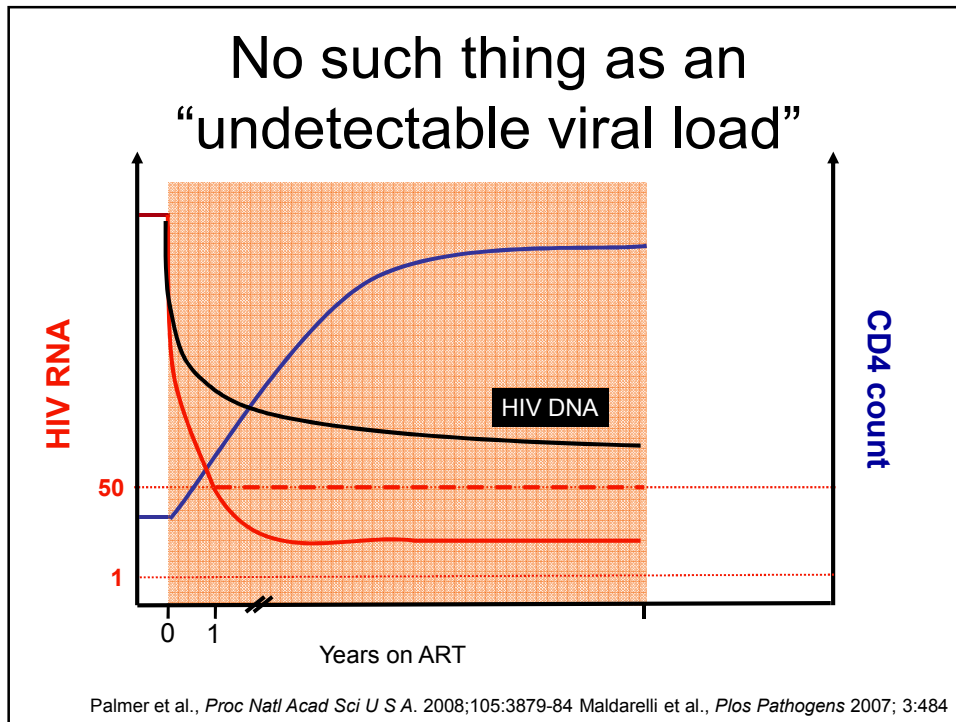
....a cure is possible

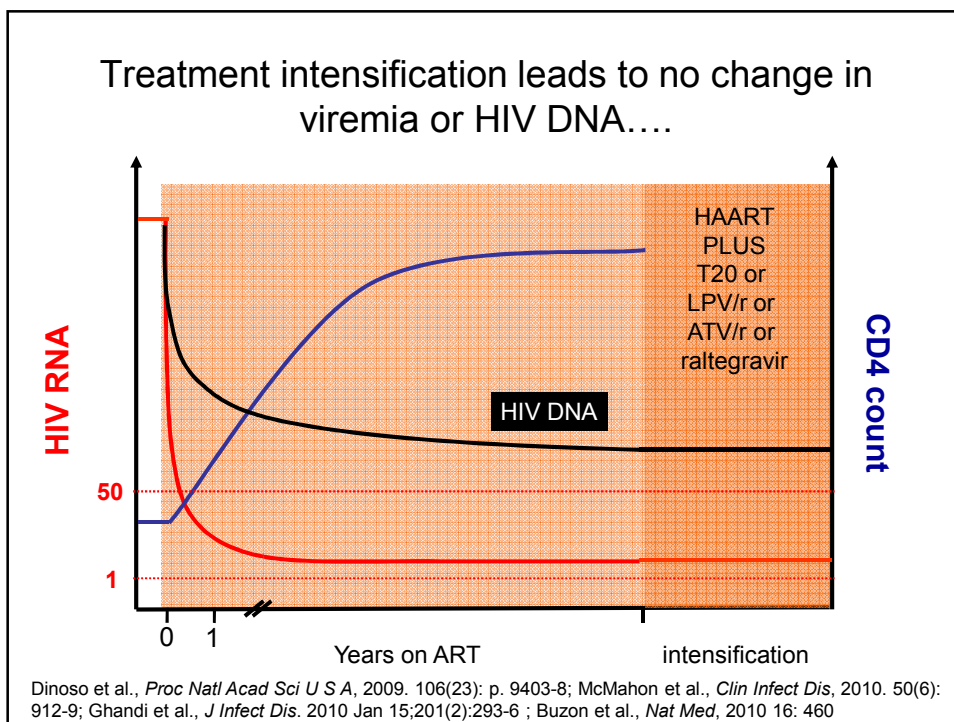
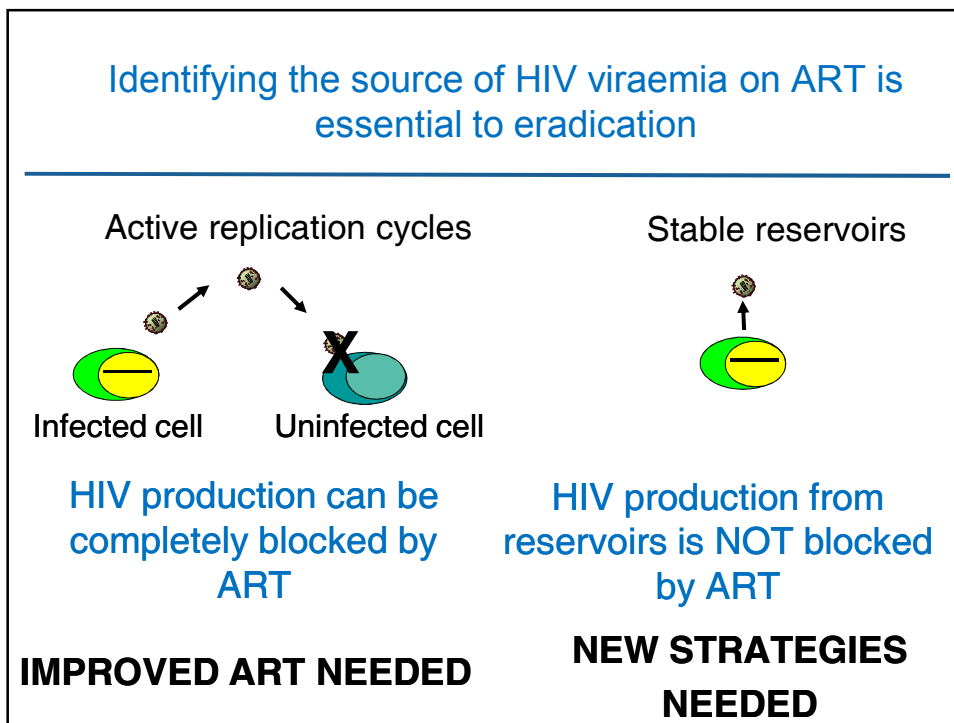
....but this price is too high

N Engl J Med, 2009; 360:692

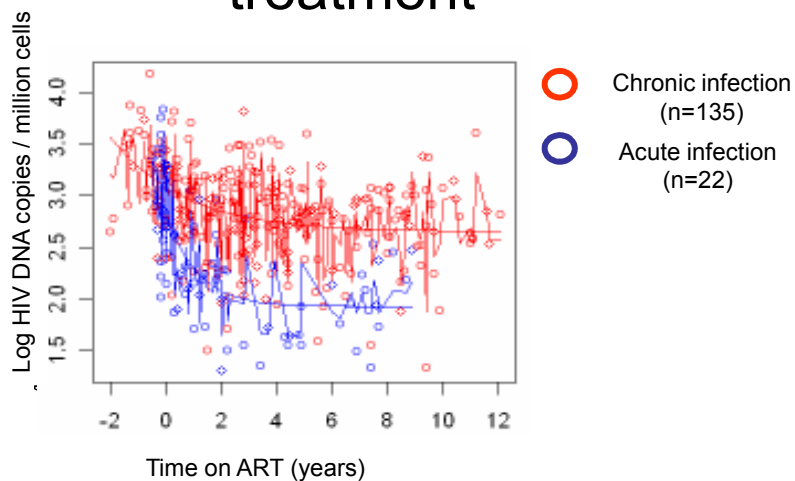


Chun et al., *Nature* 1997; 387:183; Finzi et al., *Science* 1997; 278:1295; Wong et al., *Science* 1997; 278:1291



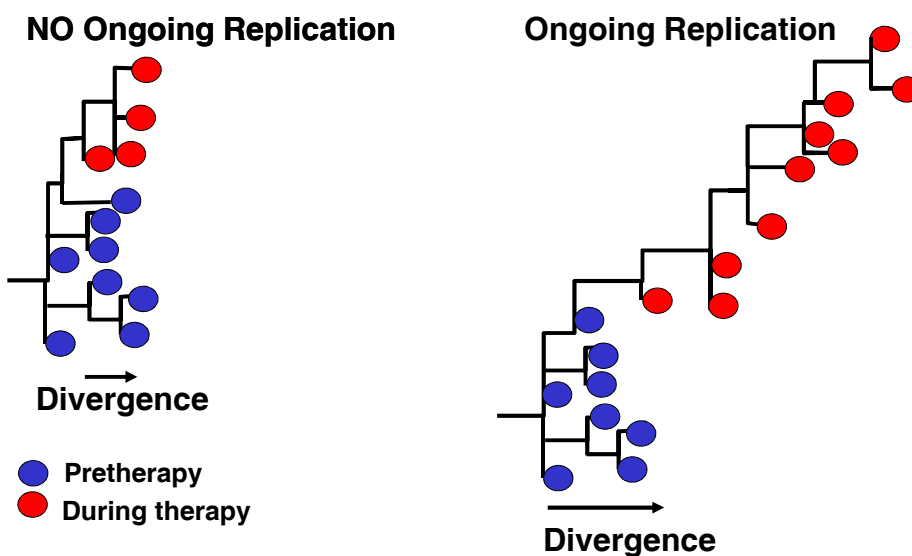


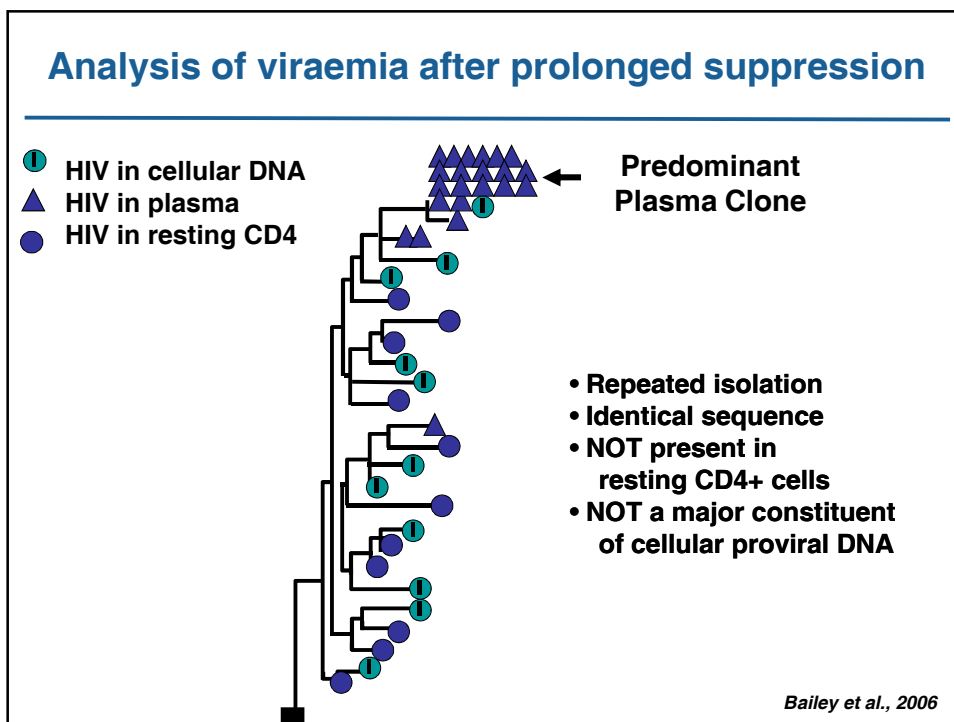
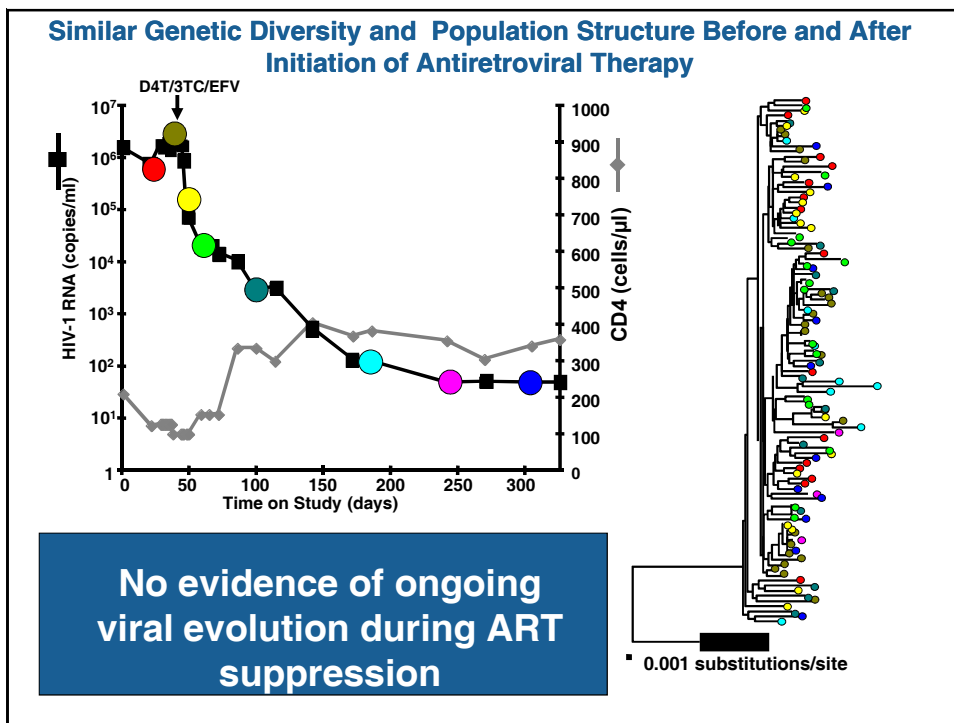
Reservoir reduced with early treatment



Hocqueloux et al., 16th CROI, Montreal, 2009; abstract #515; Hocqueloux et al., *AIDS* 2010; 24:1598

Population Genetics of Ongoing Replication

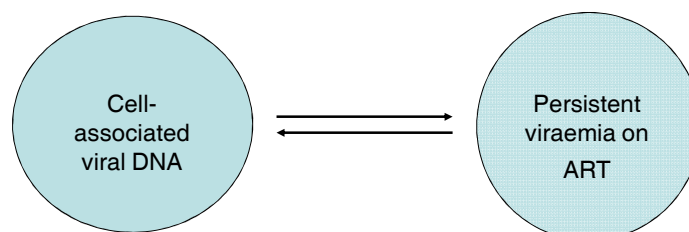


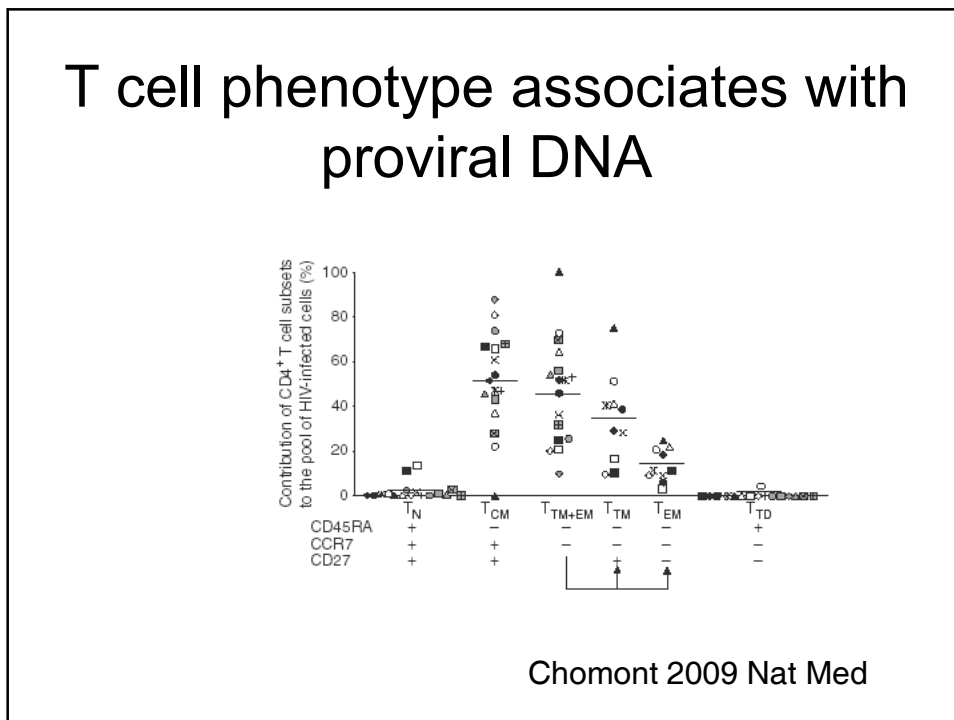
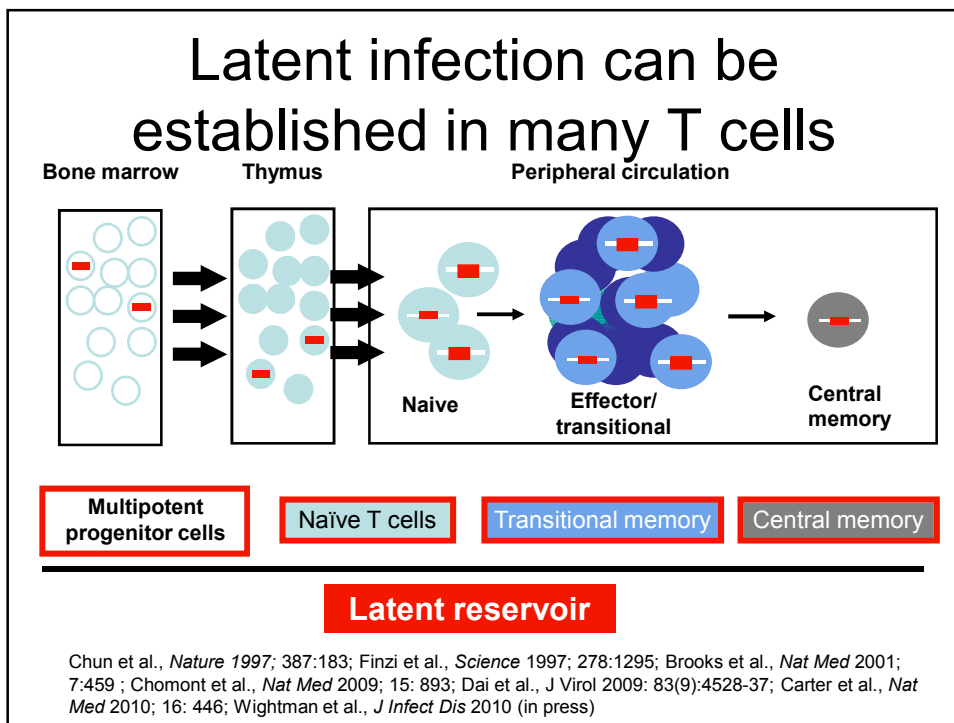


Residual viraemia

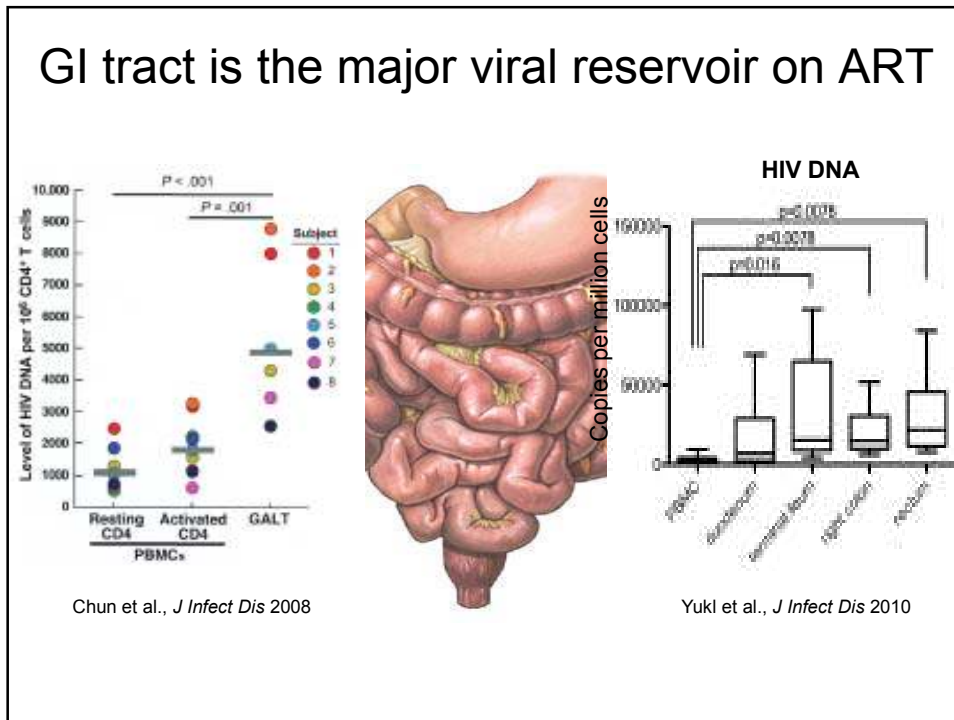
- Low grade viraemia exists in most patients
 - Not suppressed by ART intensification
- This viraemia does not evolve
 - At least in peripheral blood compartment
- Observations consistent with reactivation from latently infected cells
- Anatomical or cellular origin unclear
 - gut lymphoid tissue (GALT) ?

Two primary barriers:











GI tract is the major viral reservoir on ART



How to achieve a cure?

1. **Suppress viraemia better:**
But how ? Immunotherapy ??
2. **Target latently infected cells:**
 - Activate the proviral reservoir **exhaust**
 - histone deacetylase inhibitors
 - Silence the proviral reservoir **suppress**
 - epigenetic modification
 - Target latently infected cells **kill**
 - identify marker; HERVs?
3. **Genetic modification – delta32:** **protect**
4. **Do no harm**






University College London Hospitals  Guy's and St Thomas'  Imperial College Healthcare  Oxford Radcliffe Hospitals  Cambridge University Hospitals 



CHERUB

Collaborative HIV Eradication of Reservoirs: UK BRC

Scientific secretary: Dr John Frater (Oxon)

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