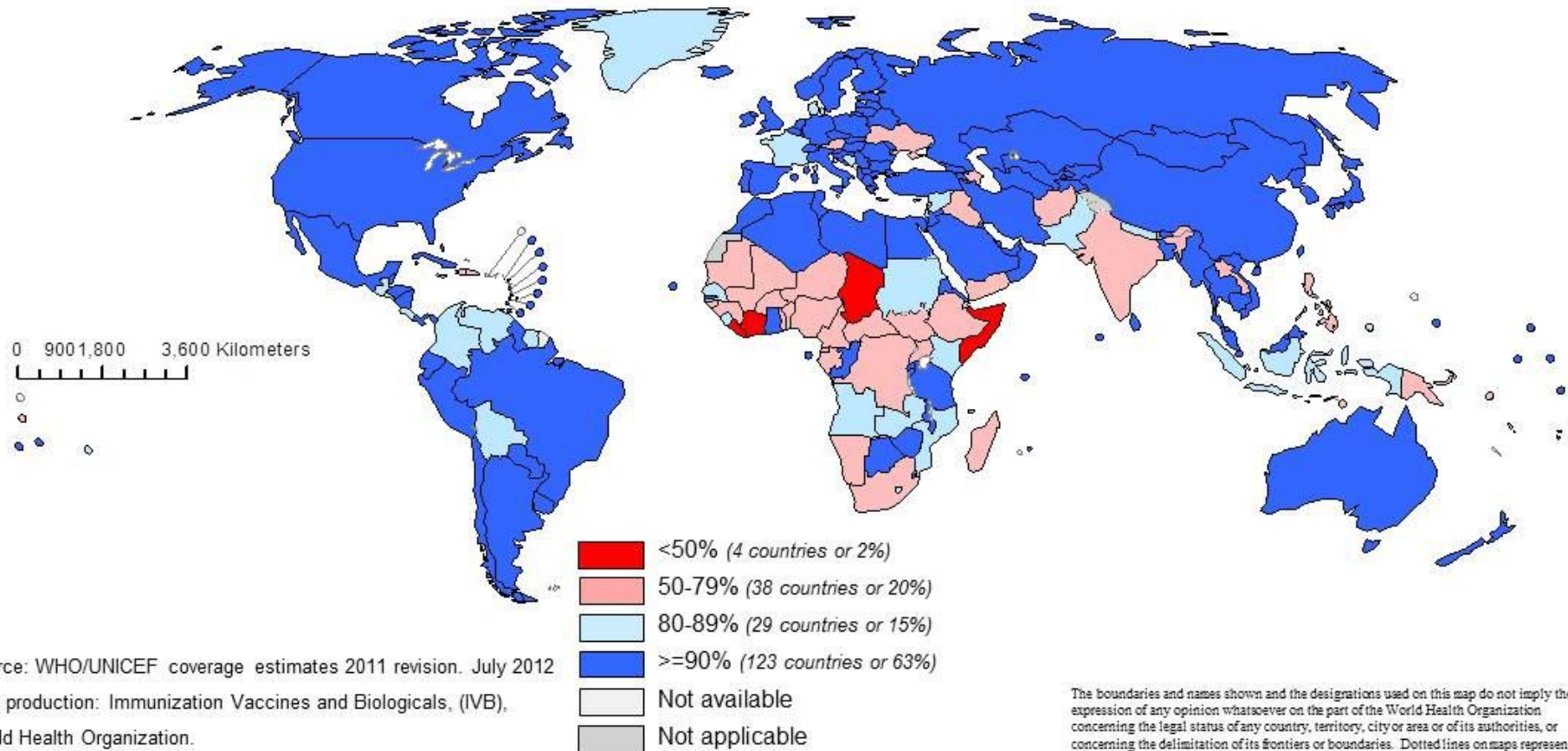


SPALNIČKY V ÉŘE VAKCINACE

P. Boštík, FVZ Hradec Králové

Immunization coverage with measles containing vaccines in infants, 2011



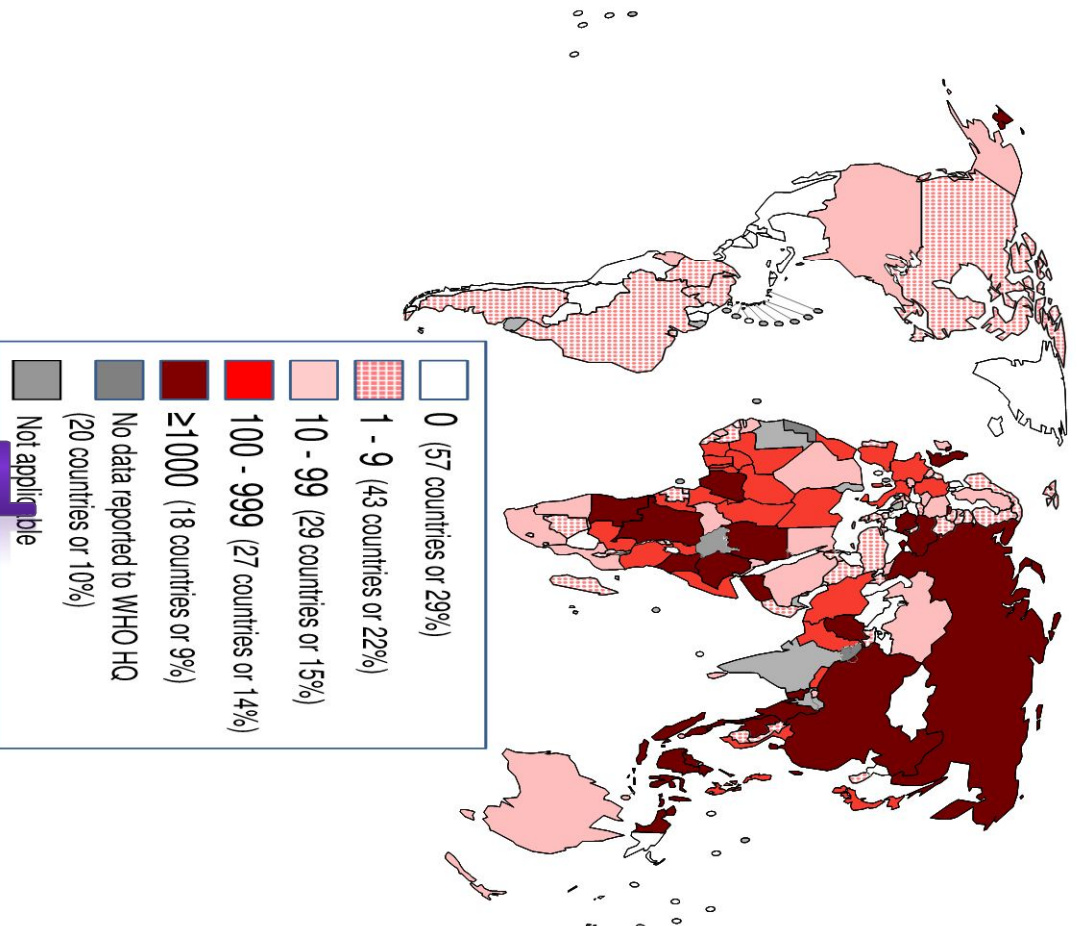
Source: WHO/UNICEF coverage estimates 2011 revision. July 2012

Map production: Immunization Vaccines and Biologicals, (IVB),

World Health Organization.

194 WHO Member States. Date of slide: 18 July 2012.

Number of Reported Measles Cases with onset date from Feb 2012 to Aug 2012



Data source: surveillance DEF file
Data in HQ as of 17 September 2012

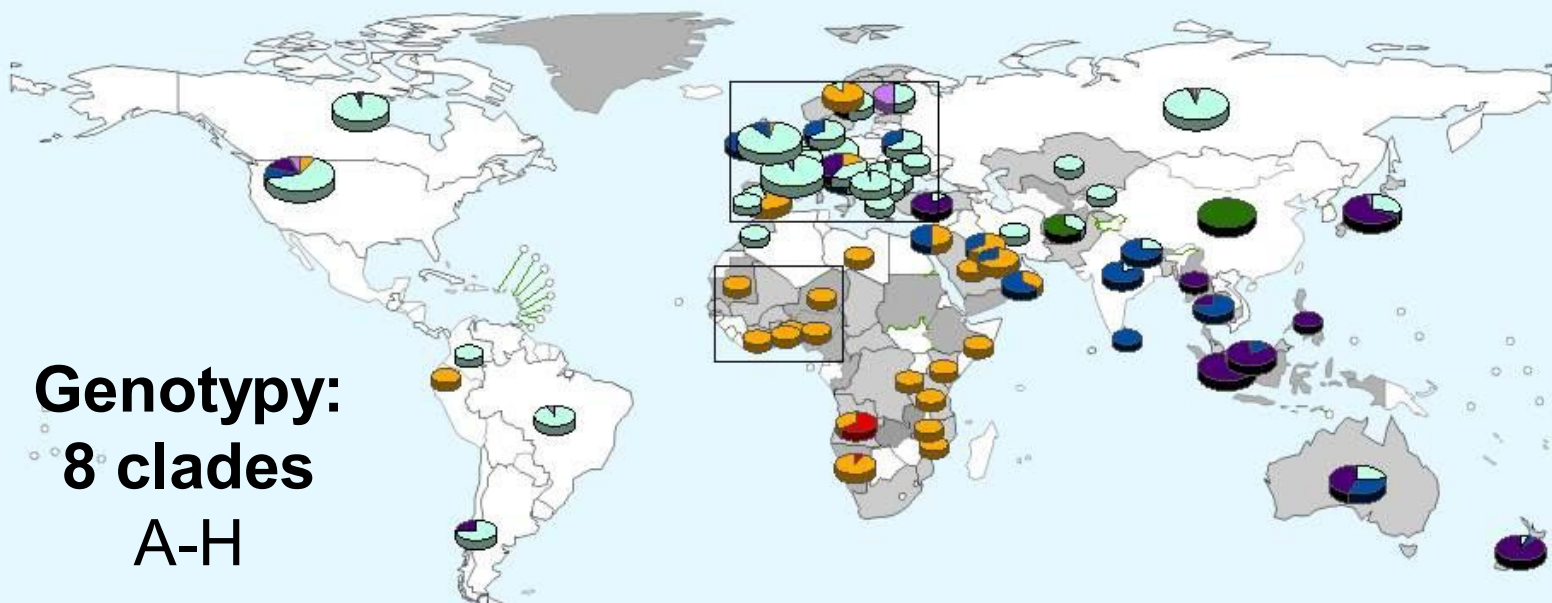


The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its subdivisions, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.
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MOLEKULÁRNÍ EPIDEMIOLOGIE

Distribution of measles genotypes, 2011. Data as of 6 February 2012

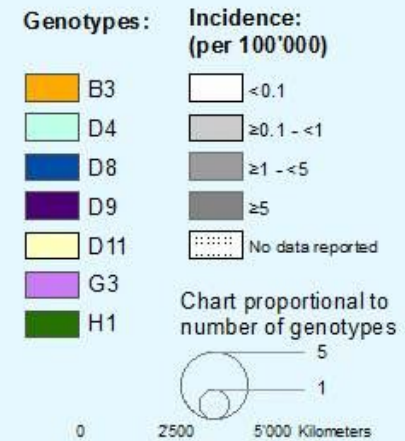


Genotypy:
8 clades
A-H

West Africa inset



West Europe



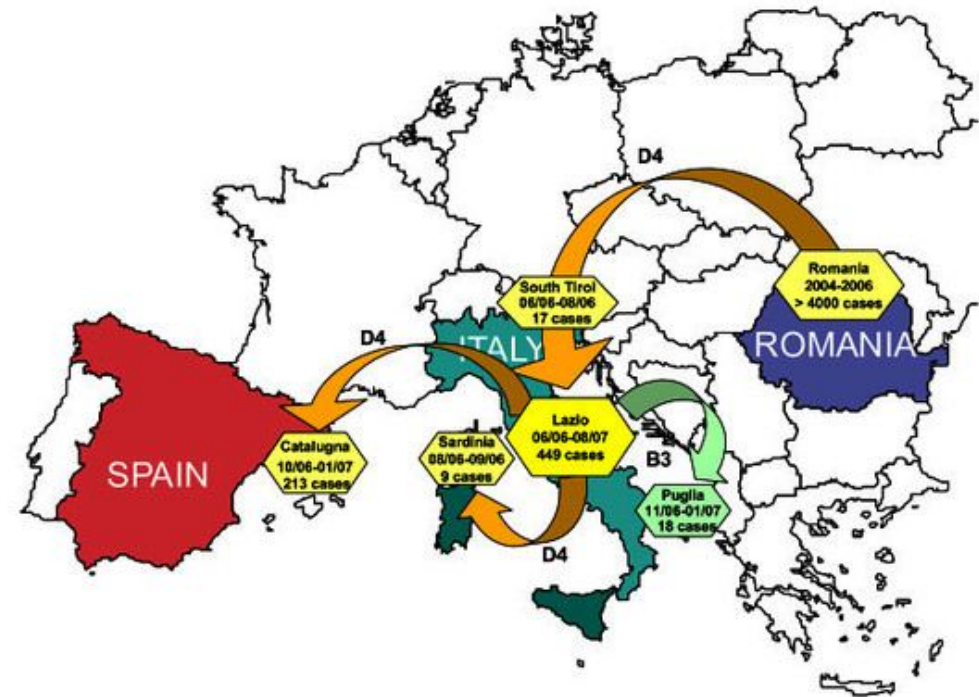
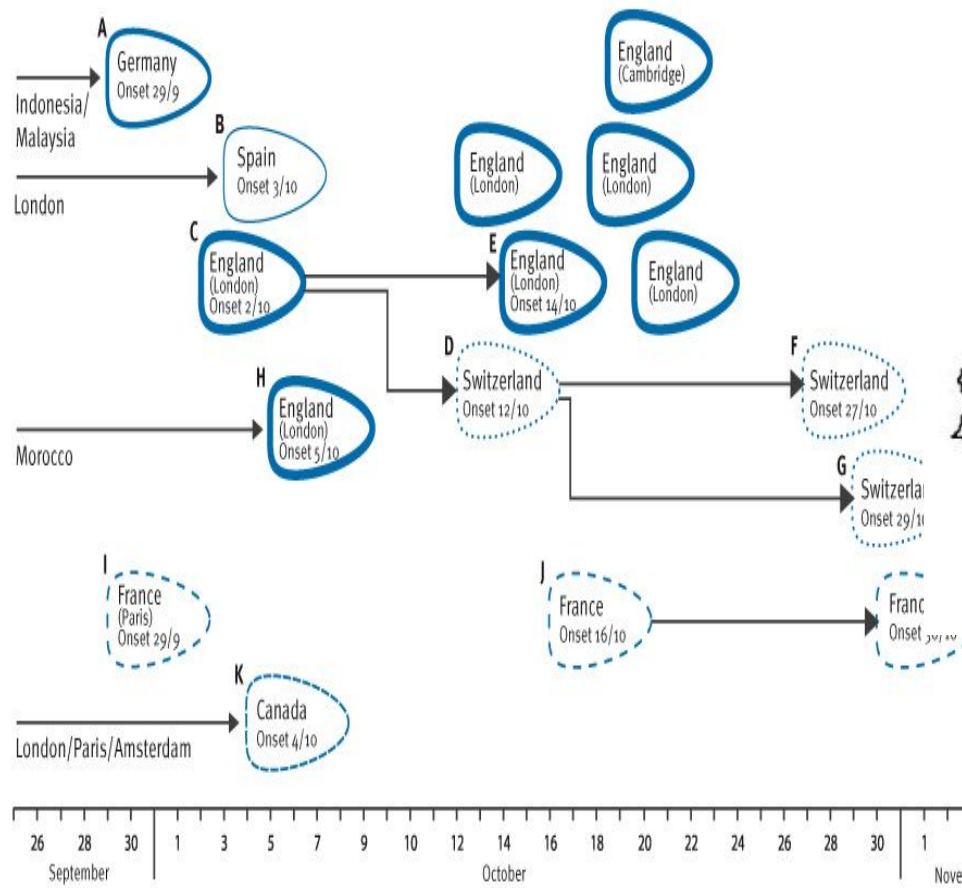
Acknowledgement: WHO Measles LabNet.

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.
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MOLEKULÁRNÍ EPIDEMIOLOGIE II.

FIGURE 1

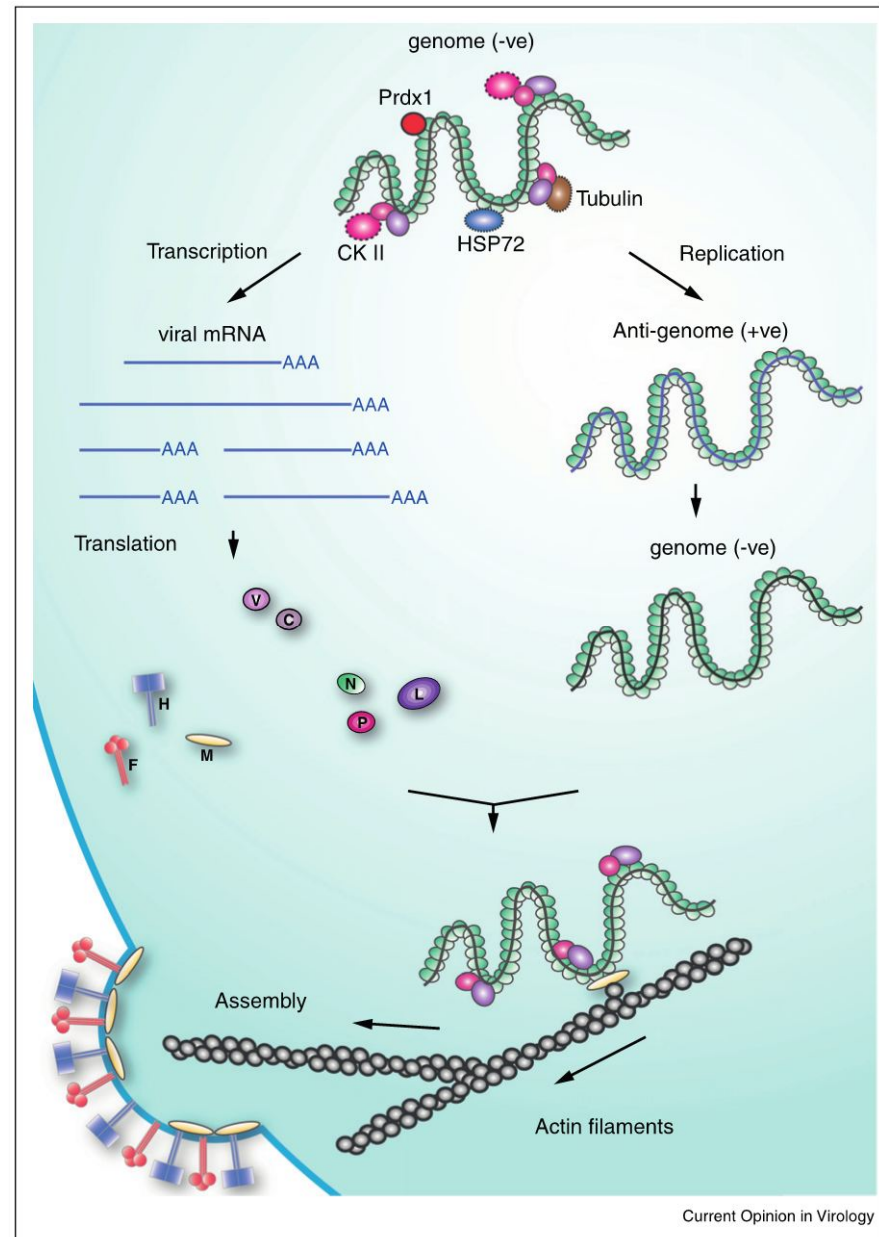
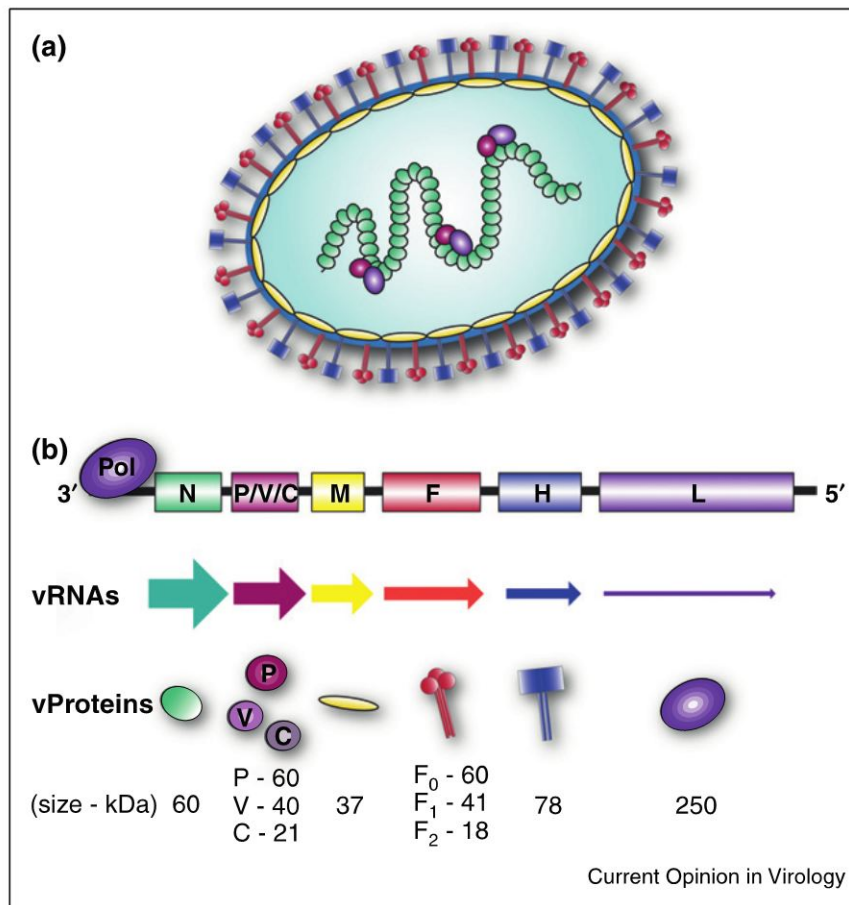
Measles infections with known epidemiological links in different countries, 2010



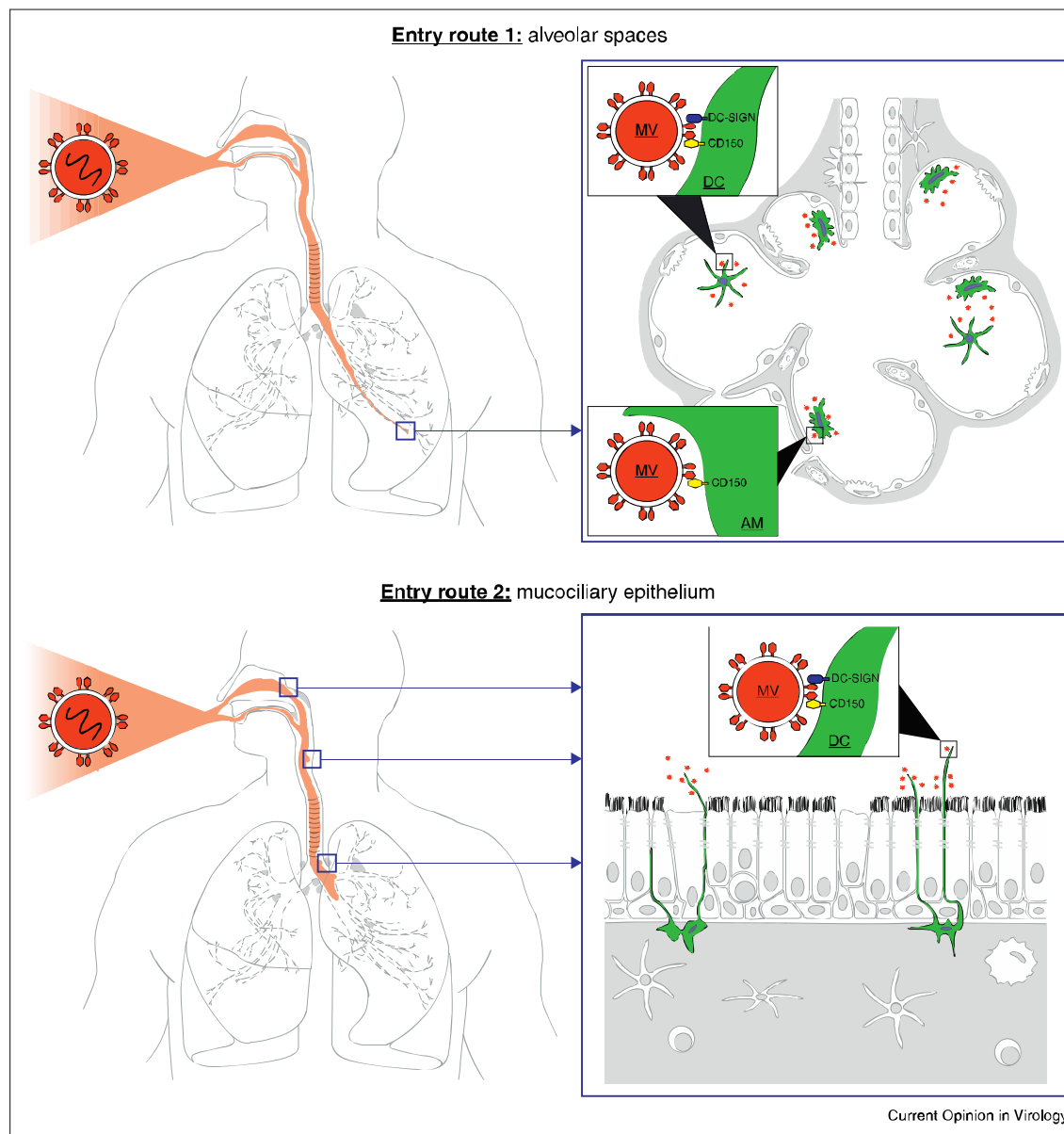
The different styles of the outlines indicate the different countries where the cases were at the time of infection.

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VIRUS SPALNIČEK

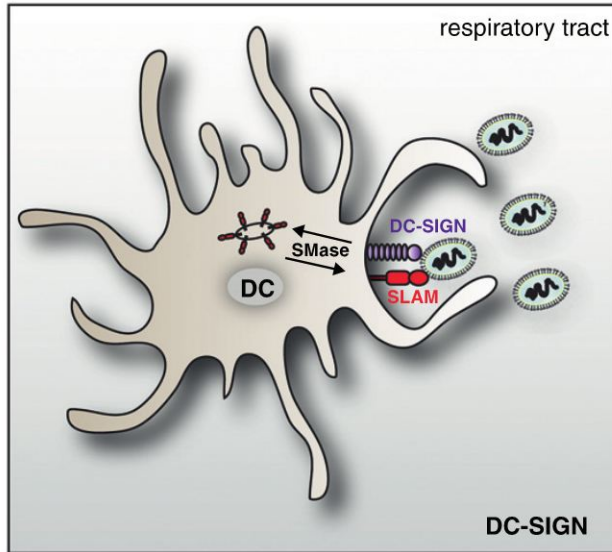


PATOGENEZE SPALNIČEK

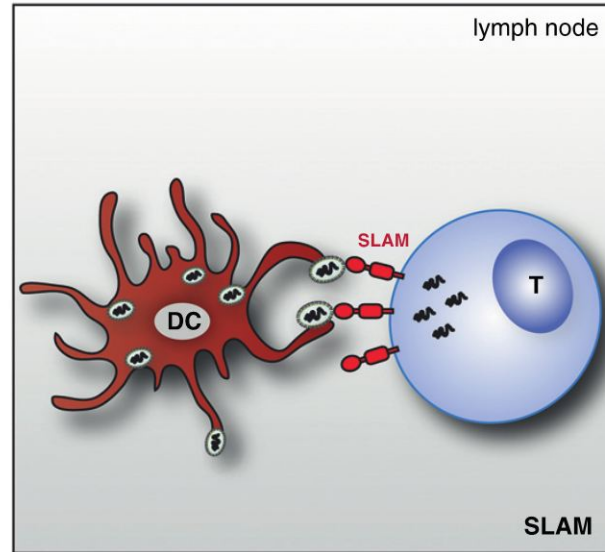


PATOGENEZE SPALNIČEK II.

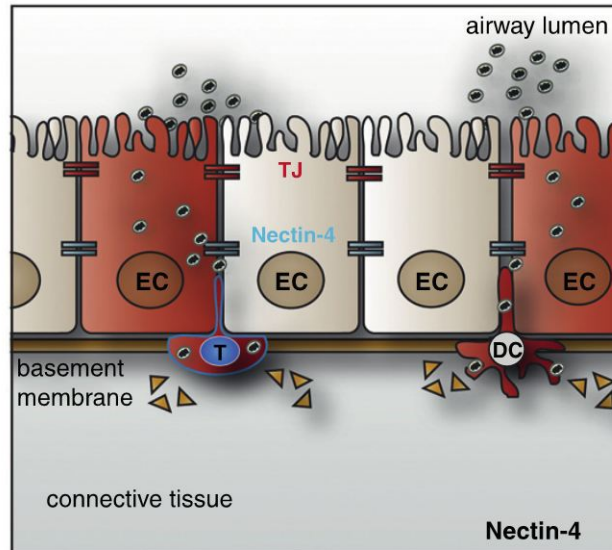
(a) Initial infection



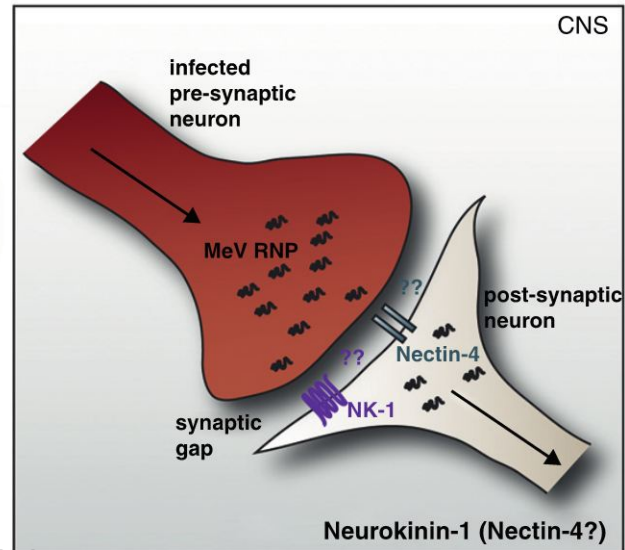
(b) Immune cell infection



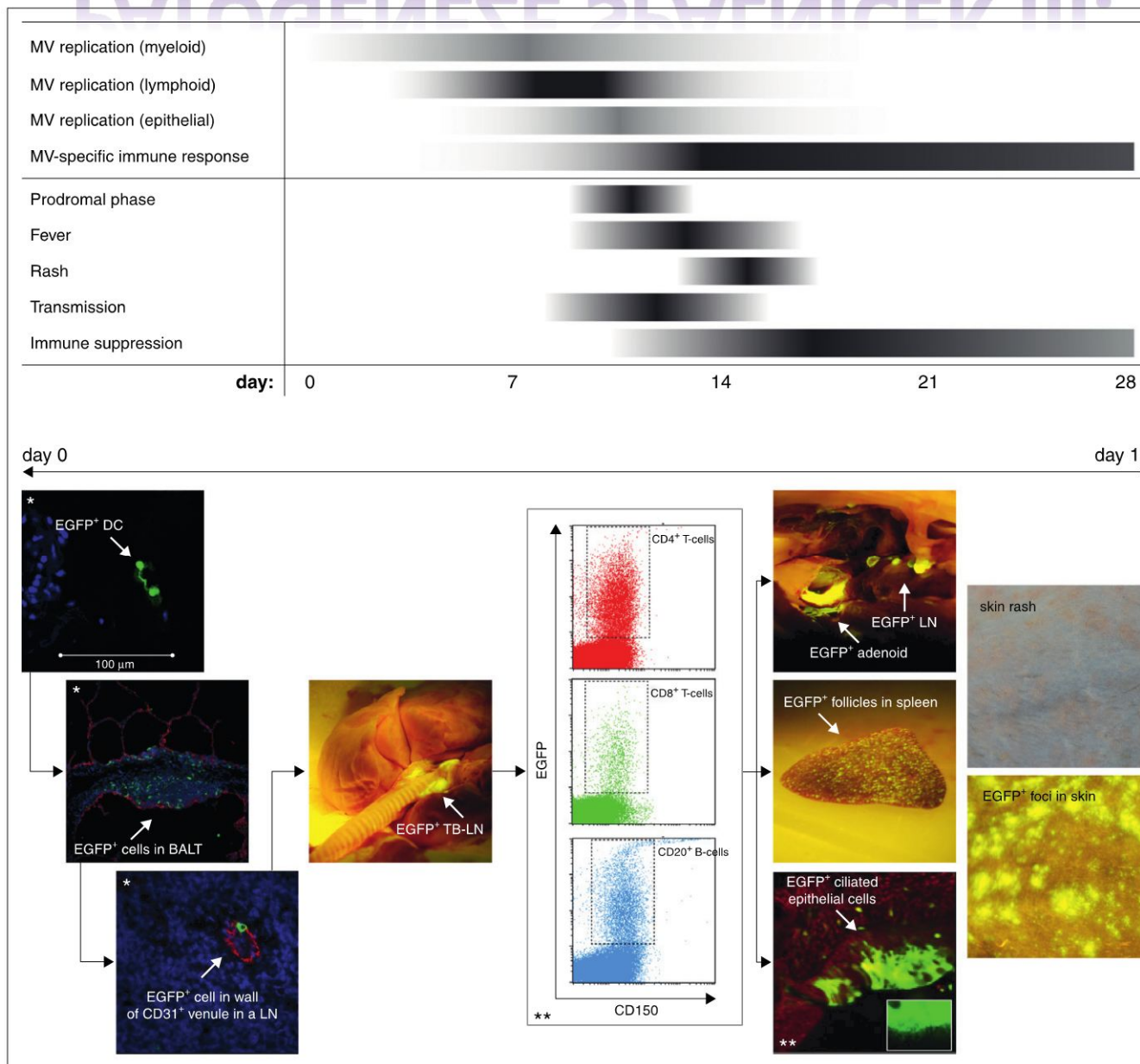
(c) Late infection (virus spread)



(d) CNS infection



PATOGENEZE SPALNIČEK III.



Model spalniček: makak, patogeneze – imunosuprese... co to připomíná?

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CÍLE OČKOVÁNÍ

Kolektivní imunita → ... eliminace onemocnění z populace

R_0 – reprodukční faktor, $MV > 10$ (12-18)

Proočkovanosť nutná k eliminaci → $1 - 1/R_0$

ALE... toto je ideální stav; možné problémy:

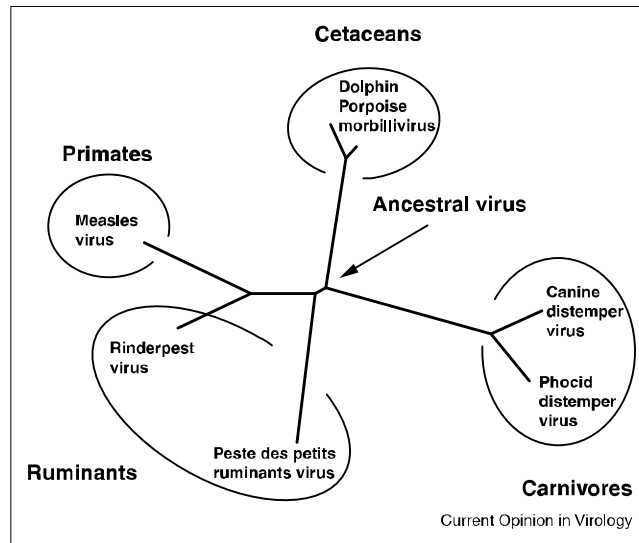
- 1) Efektivita vakcíny (1 V 2 dávky)
- 2) Heterogenní populace – rozdílné intenzity interakce
- “kočovníci” v Irsku 2009
- 3) Rozdílná míra rizikového chování u jednotlivých skupin
- 4) “Freeloaders”



HETEROLOGNÍ (NESPECIFICKÉ) ÚČINKY OČKOVÁNÍ

- 41% pokles mortality u dětí očkovaných MV, pouze 6% z důvodu prevence spalniček! (Aaby et al, BMJ 2010 c6495; a BMJ 2012 e000761)
- rozdílné efekty u imunizace novorozenců (Th2, IL10...) a dětí
- rozdíl muži x ženy
- efekty na vrozenou imunitu - “trained immunity”
- zkřížená reaktivita (Influenza A-EBV)
- geografická lokalizace? (město x venkov)

ERADIKACE - MŮŽEME SE POUČIT?



DOBYTČÍ MOR – RPV

- morbillivirus, eradikován 2001
- společný ancestrální virus, adaptace
- RPV (nebo ancestrál) – mezidruhový přenos na člověka před 2-5 tis. lety, při koncentraci obyvatel, kde je možná endemická cirkulace (250-500 tis.)

Eradikace RPV- paralely a rozdíly:

- 1) Charakteristika onemocnění – v drtivé většině charakteristické příznaky
- 2) Efektivní vakcína – nicméně MV vyžaduje chlad...uchovávání a přeprava problém; alternativní způsoby vakcinace
- 3) Cílová populace
- 4) Podpora veřejnosti



DĚKUJI ZA POZORNOST

Flanagan et al.: Heterologous (“Nonspecific”) and Sex-Differential Effects of Vaccines: Epidemiology, Clinical Trials, and Emerging Immunologic Mechanisms. *CID* 2013;57, 283-9

Rashid et al.: Vaccination and herd immunity: what more do we know? *Curr Opin Infect Dis* 2012, 25:243-249

Delpeut S. et al.: Host factors and measles virus replication. *Current Opinion in Virology* 2012, 2:773-783

Swart R. et al: Rinderpest eradication: lessons for measles eradication? *Current Opinion in Virology* 2012, 2:330-334

de Vries RD.: The pathogenesis of measles. *Current Opinion in Virology* 2012, 2:248-255

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