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Neutralization of SIV and HIV-2

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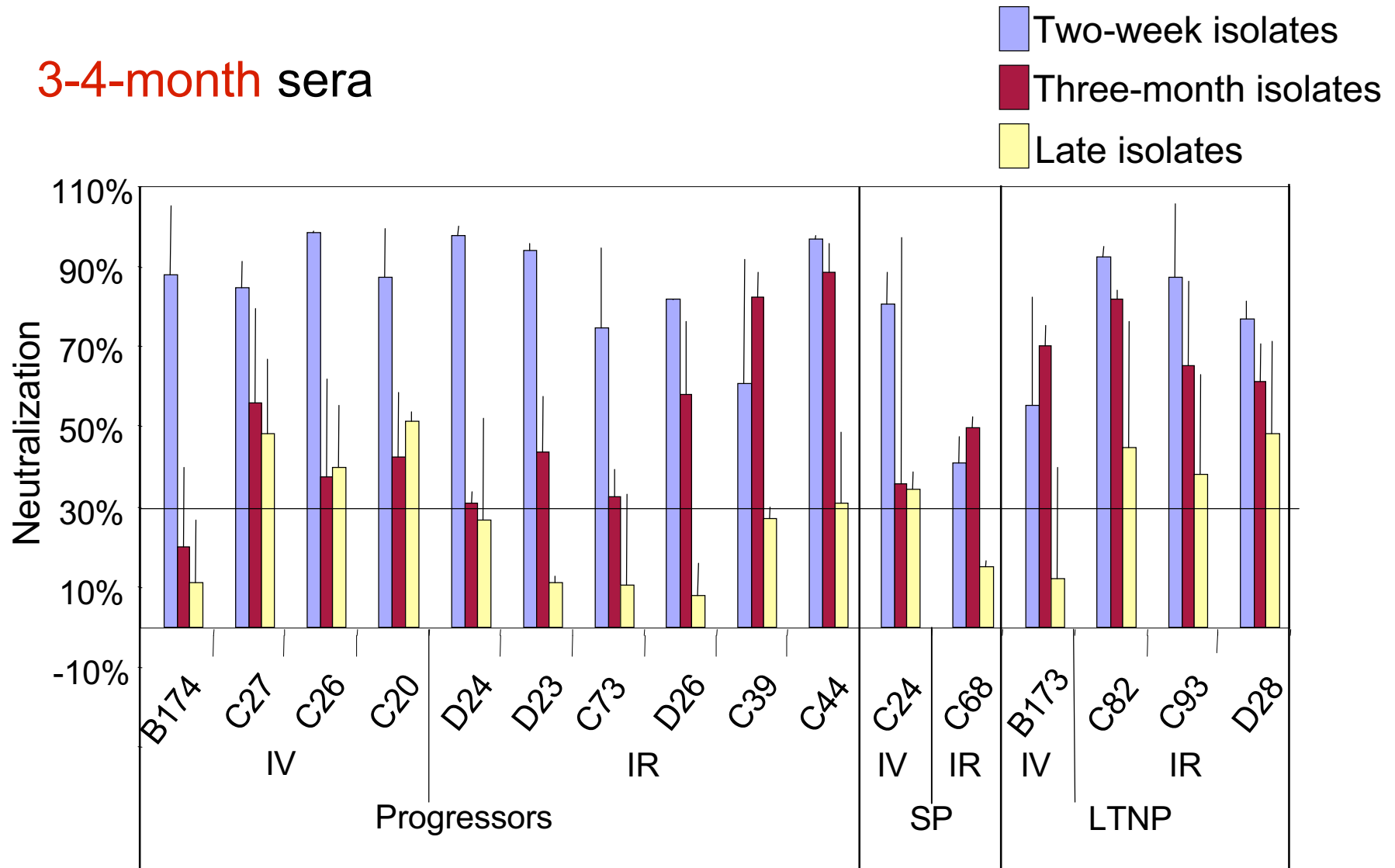
Issues to discuss...

- Escape from autologous neutralization
- Production of neutralizing antibodies in the infected host - relationship to pathogenesis
- Broadly cross-reactive neutralization?

***Simian immunodeficiency
virus
from sooty mangabey
SIVsm***

Escape from *autologous* neutralization

3-4-month sera



Nordqvist 2004

Emergence of neutralization escape variants is pathogenesis related

- ❖ Escape from autologous neutralisation at 3 months:
 - Six of 10 progressor monkeys
 - none** (or 1/6?) of slow progressor and LTNP monkeys
- late:
 - Nine of 10 progressor monkeys
 - three of six SP or LTNP monkeys
- ❖ Evolution to neutralisation resistance by heterologous sera parallels resistance to autologous neutralisation.

HIV-2 in monkeys

non-pathogenic infection

Monkey	Virus months PI	Neutralizing titers at months PI		
		5	9-12	21
H44	5	80	80	80
	12	20	20	20
	21	80	320	160
H45	5	40	80	>320
	9	80	20	>320
	21	320	320	320

No escape

HIV-2 in humans

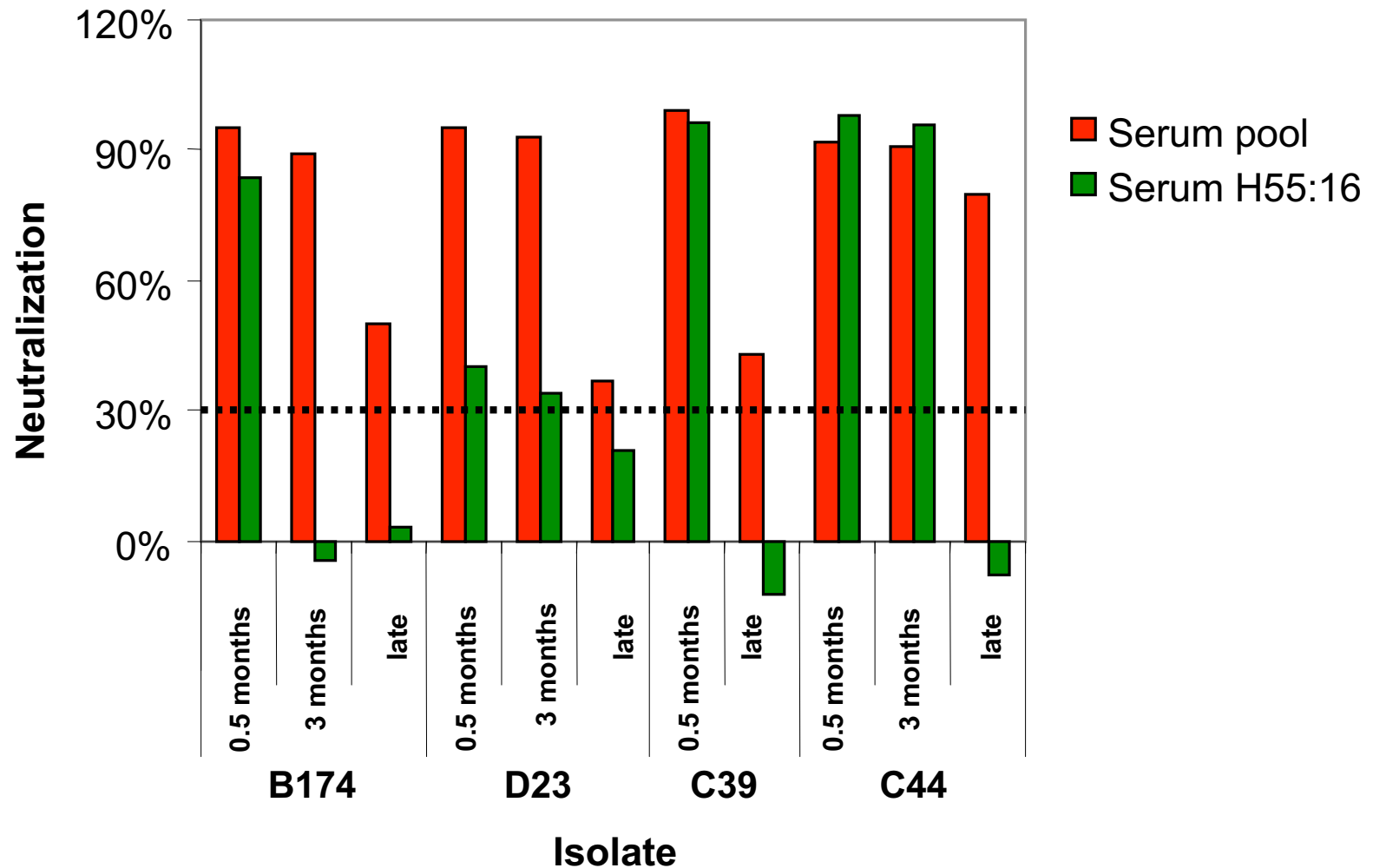
less pathogenic than HIV-1

Patient	Virus	% Neutralization in serum			
		1994	1996	1998	2002
2	1994	75	47	95	52
	1996	46	40	94	64
	1998	62	41	58	48
	2002	50	<	70	35
4		1992	2000	2001	2002
	1992	60	77	32	<
	2000	53	39	68	52
	2001	77	52	55	81
	2002	38	57	<	68

No escape

*How broadly cross-reactive is
the neutralizing response?*

SIV serum pool from 4 LTNP monkeys is broadly neutralizing



HIV-2

heterologous neutralization

- In monkeys:
- 4 sera X 6 viruses tested in PBMC assay
- all viruses neutralized by all sera
- 2 sera neutralized 2/4 HIV-2 isolates from humans

- In humans:
- 18 sera X 6 viruses tested in plaque assay
- In 84/97 tests neutralization achieved
- Even neutralization of another HIV-2 subtype (B)

Main participants

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The WHO Network for HIV
Isolation and Characterization

The Lund neutralization team

