

# **“New” Virology Technologies:**

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## **Diagnosis of early infection:**

- # 372: p24Ag screening + RT-PCR HIV *env* & *pol*
- # 370: Pooled HIV RNA PCR (of EIA (-) pregnant women)
- # 663: Real-time quantification of Group M subtypes A-H, Group O and N HIV *pol* (Abbott Labs)
- # 715: HIV DNA PCR from infants' DBS on SS 903

## **Monitoring HIV drug resistance:**

- # 549: Shipping dried plasma spots Tunisia-to-France
- # 664: Cavidix Exavir viral load + phenotype
- # 666: CDC surveillance of HIV drug resistance using DBS

# Early Diagnosis: Abstracts & Discussion Topics

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## # 372: p24Ag (+) plasma from Cameroon confirmed by RT-PCR HIV *env* & *pol*

- p24Ag detects rare Group M subtypes, Group O virus that may not be detected by commercial PCR primers
- Heat Dissociated p24Ag was 100% sensitive + 99.2% specific infant diagnosis (D Nadal JID 1999)
- Suitable for filter paper transport (CC Li JCM 2005)
- Which methods are ready for use?

## # 370: Pooled HIV RNA PCR (of EIA (-) pregnant women)

- North Carolina's Screening and Tracing Active Transmission (STAT) for diagnosis of early infection of HIV in pregnant women
- Pooled nucleic acid detection diagnosis ~4% of new infections at high risk of transmission
- Suitable for infant diagnosis when low rate of MTCT

## **Early Diagnosis (con't): Abstracts & Discussion**

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### **# 663: Real-time quantification of Group M subtypes A-H, Group O and N *pol* (Abbott Labs)**

- Separate signal generation from stringent annealing of probe
- Multiple primers and partially double-stranded probe to HIV *pol* allows annealing of probe at low temperatures (accepts mismatches ) with uncoupling of exonuclease activity
- New method to deal with genetic polymorphisms! of probe
- Further evaluation needed
- Equipment costly

### **# 715: HIV DNA PCR Botswana infants' DBS on SS 903**

- “manual extraction” and Roche 1.5 HIV DNA PCR
- PACTG evaluating storage at -20oC and 37oC
- Chelex most sensitive, however, problems with inhibitors

# Monitoring HIV drug resistance

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## • **# 549: Shipping dried plasma spots Tunisia-to-France**

- Spotted plasma on SS903 mailed to France
- Amplified - 86% Pro; 73% RT; 74% gp41 env
- Small amount of specimen, low copy number a problem, partially alleviated with concentration of DNA

## **# 664: Cavidix Exavir viral load + phenotype**

- Phenotype relatively inexpensive
- See Discussion by Dr. Fiscus

## **# 666: CDC surveillance of HIV drug resistance using DBS**

- No amplification of HIV RNA or DNA from whole on SS903 paper X 5 years stored at 24°C (room temperature); -70°C amplified
- HIV DNA stable in FTA Whatman paper x4 years (CC Li JCM 2004)
- Attributes of various types of filter paper differ: SS903 holds RNA, DNA and proteins and preservation improved by freezing; FTA preserves DNA at room temperature and does not require extraction

