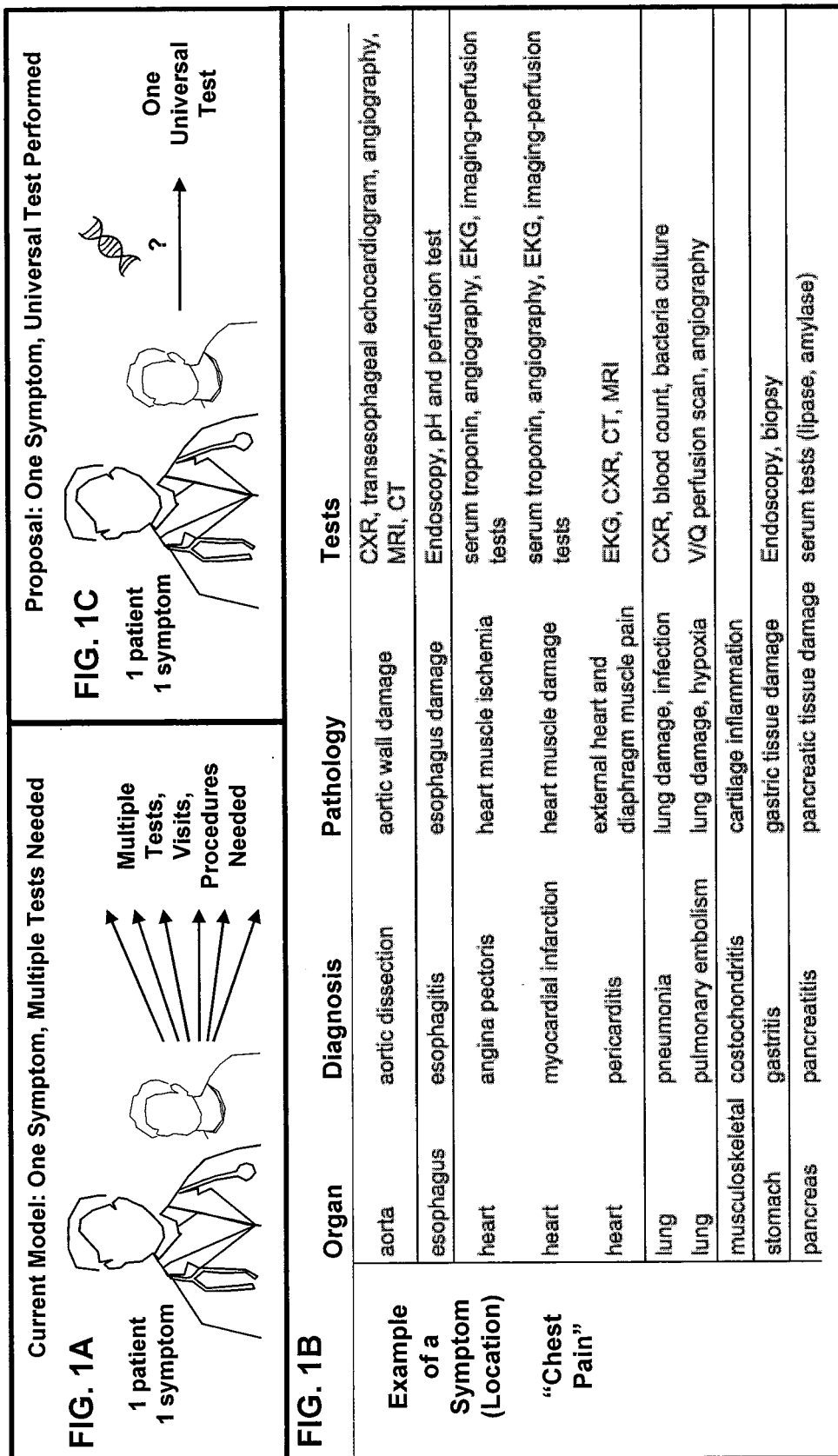
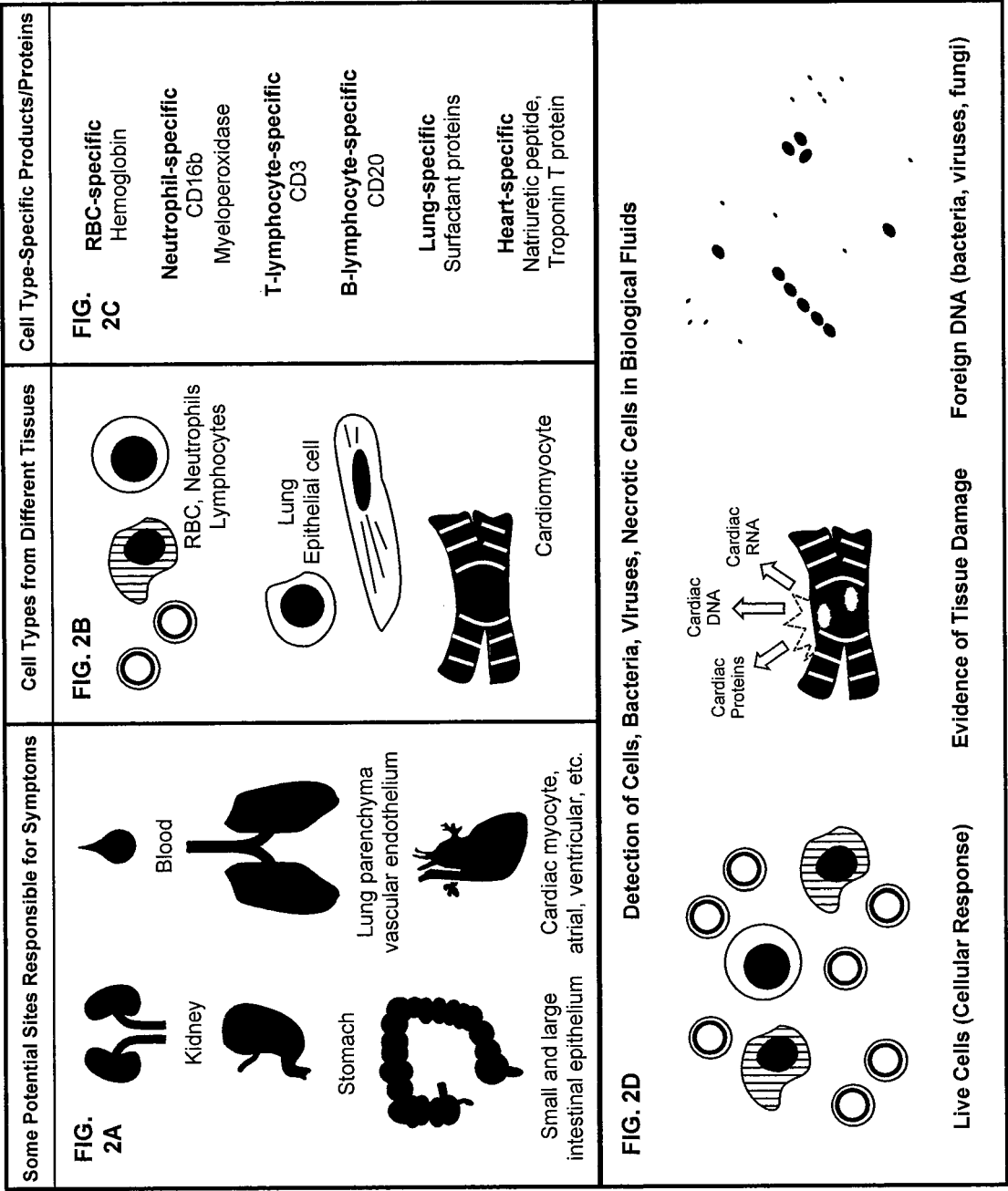


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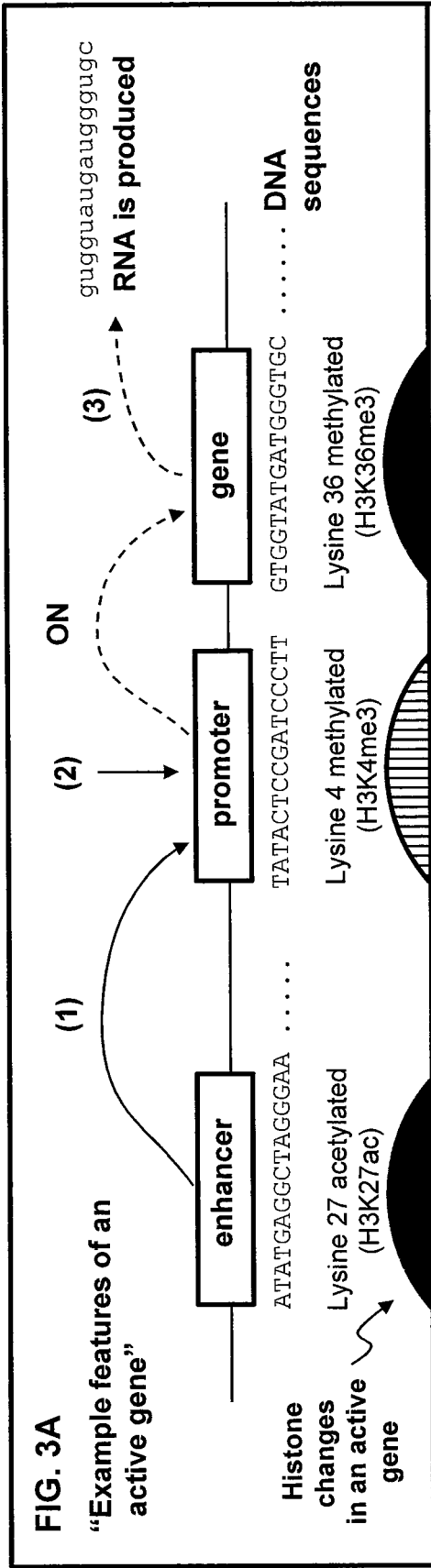


FIG. 3B “Examples of an inactive vs. active gene”

Active gene	Assay	Result (and Interpretation)
Histone H3K27ac at enhancer DNA	Capture H3K27ac	Enhancer sequence detected = active enhancer
Histone H3K4me3 at promoter DNA	Capture H3K4me3	Promoter sequence detected = active promoter
Histone H3K36me3 at transcribed DNA	Capture H3K36me3	Gene sequence detected = active gene
Active RNA Polymerase bound to DNA	Capture RNA Polymerase	Gene sequence detected = active gene
RNA transcript is produced	RNA sequencing (RNA-seq)	Gene sequence detected = active gene
Inactive gene	Assay	Result (and Interpretation)
Histone H3K27me3 at promoter DNA	Capture H3K27me3	Promoter sequence detected = inactive promoter
RNA Polymerase unbound or inactive	Capture RNA Polymerase	No gene detected = inactive gene
No RNA produced	RNA sequencing	No gene detected = inactive gene

(Capture assays are called ChIP-seq, sequencing chromatin immunoprecipitation; RNA-seq, sequencing RNA)

FIG. 4A Clinicians use tests to infer biological information (inferred values) about a condition

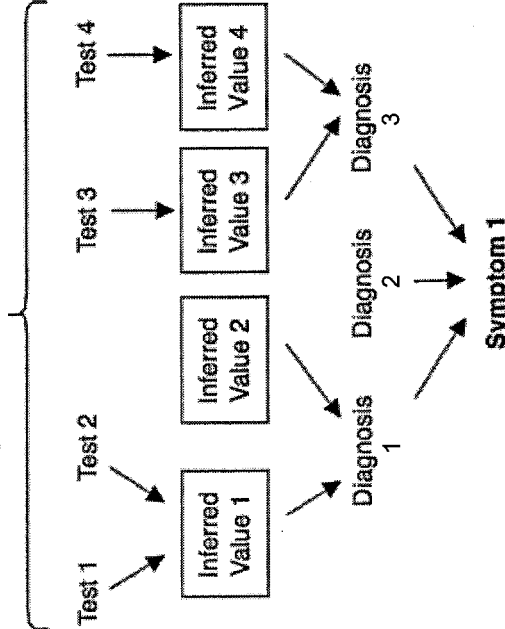


FIG. 4B Symptom, Inferred Values, Tests, Diagnoses can be electronically associated

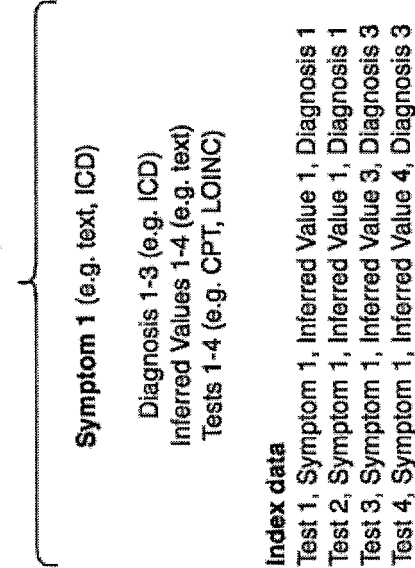
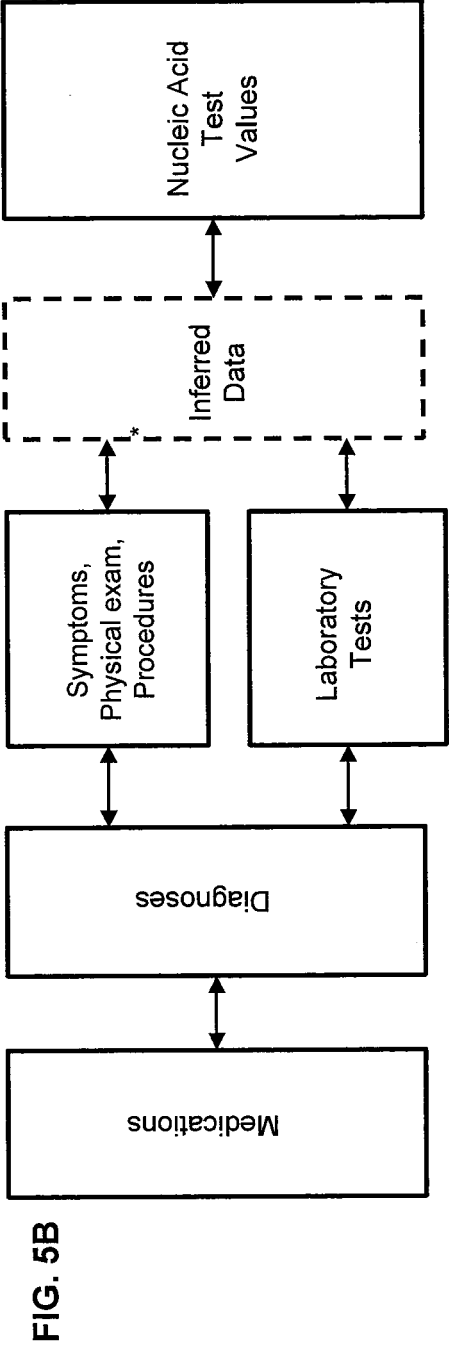
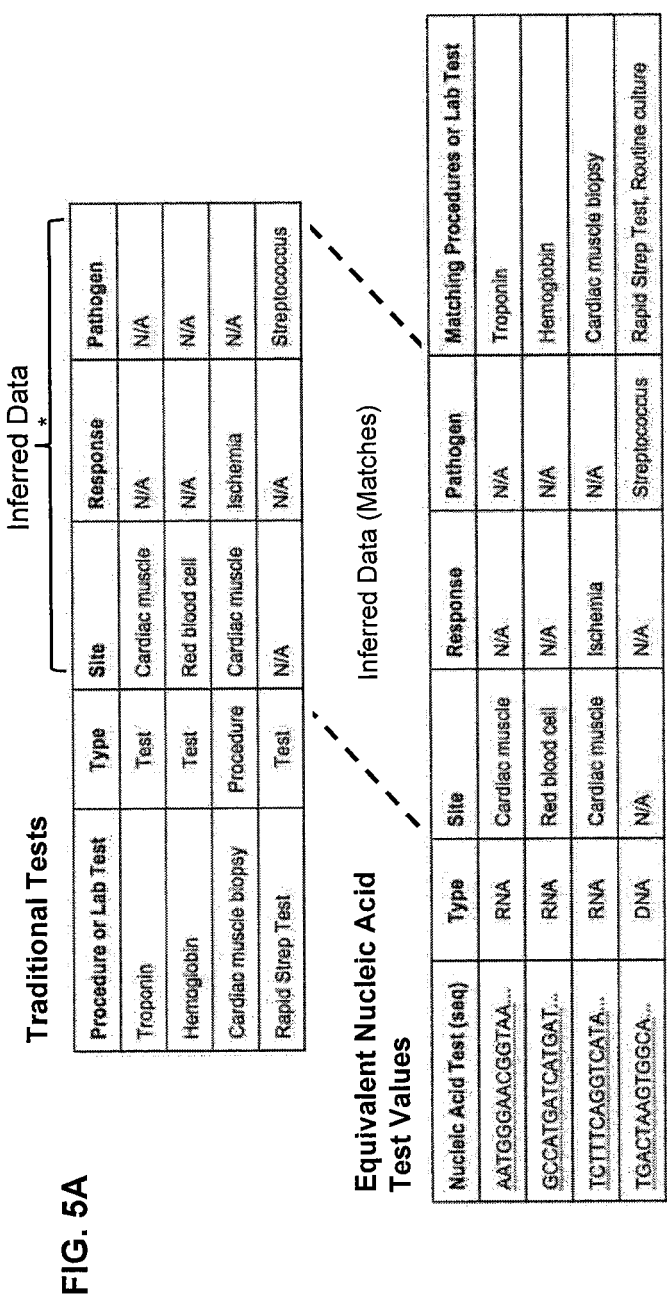


FIG. 4C

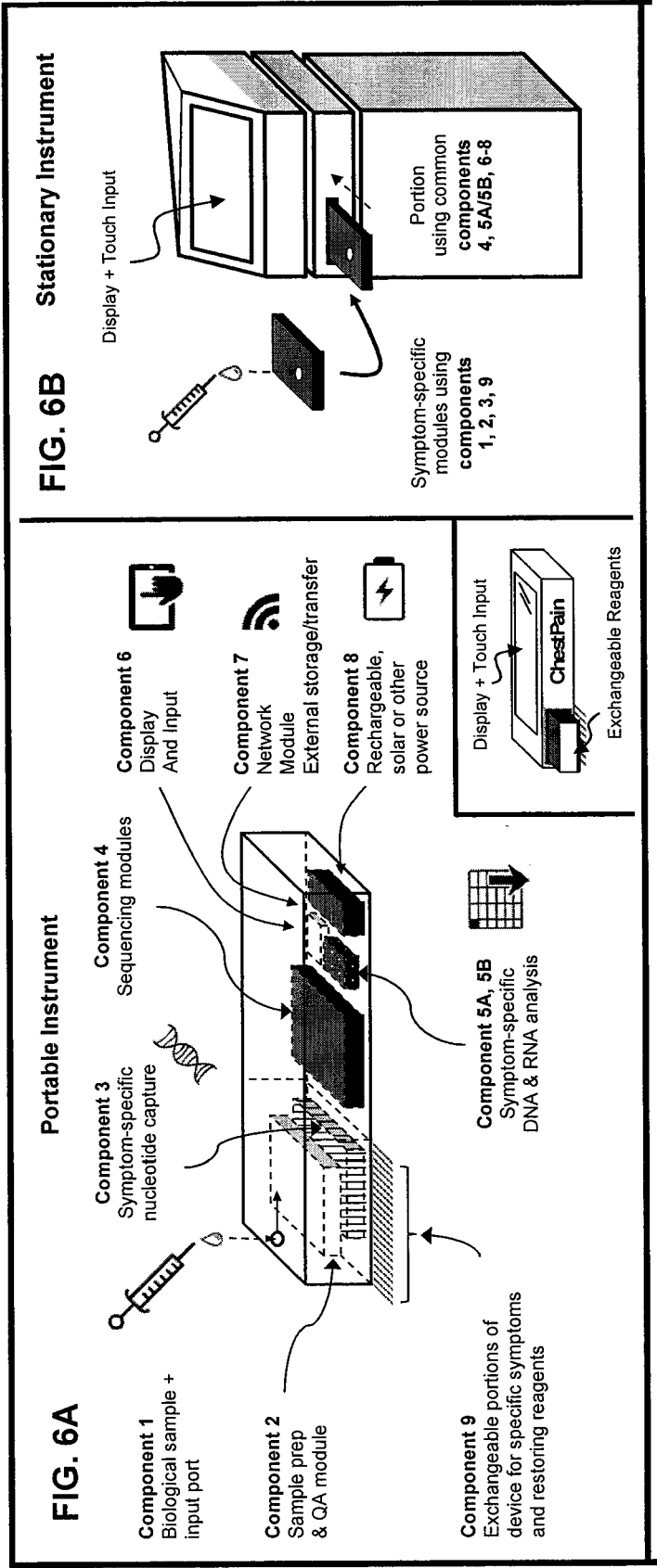
Examples and categories of Inferred Values used by clinicians

Category I: Anatomical Site Heart Lung Bronchus Liver Kidney Brain Aorta	Category II: Host and pathogen response Ischemia Acute inflammation (neutrophilic, TNF) T-cell response (Th1) T-cell response (Th2) T-cell response (Th17) Allergic response (eosinophils, IgE) Hyphael growth (Candida response)	Category III: Pathogen Staphylococcus aureus Streptococcus pneumoniae Neisseria meningitidis
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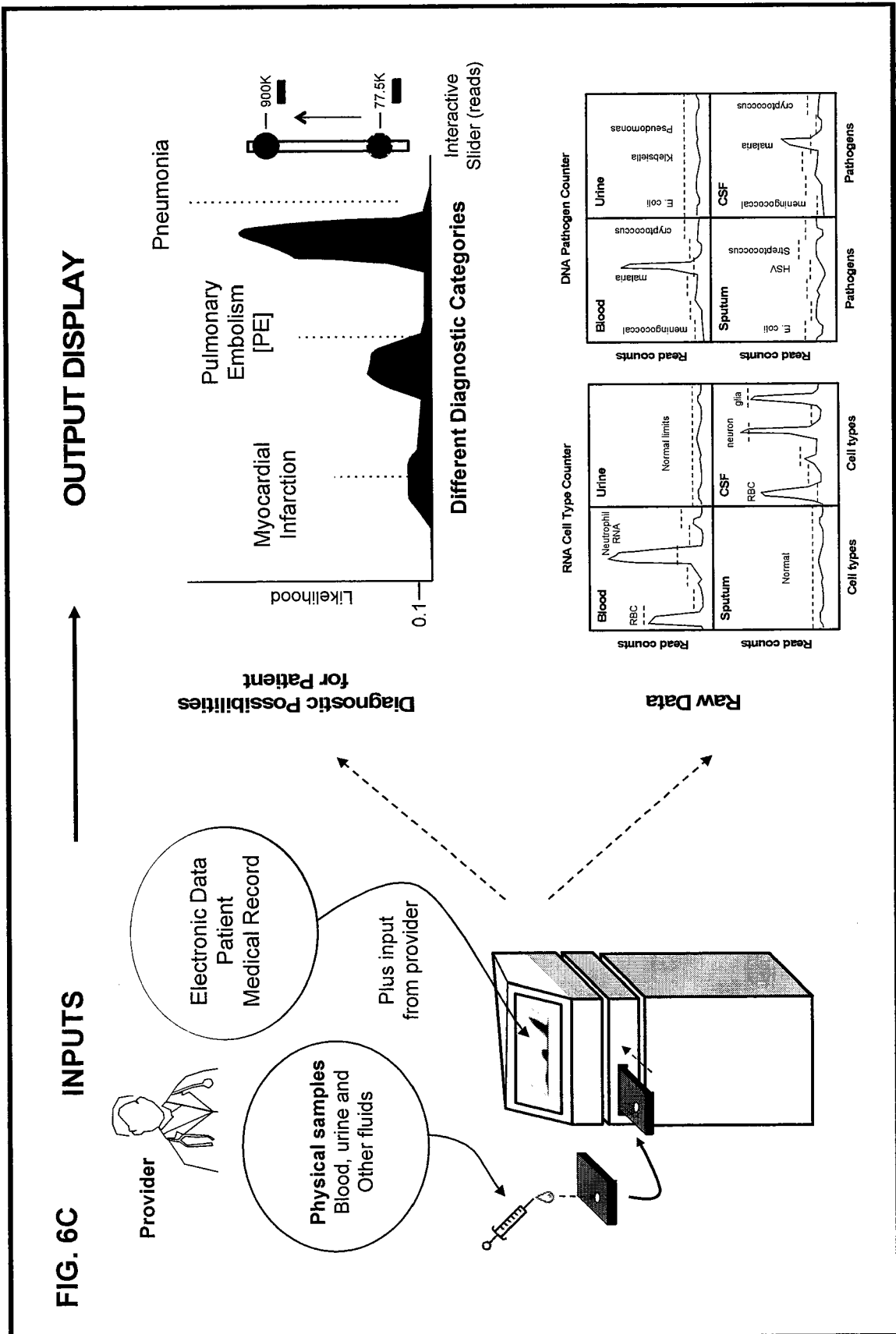
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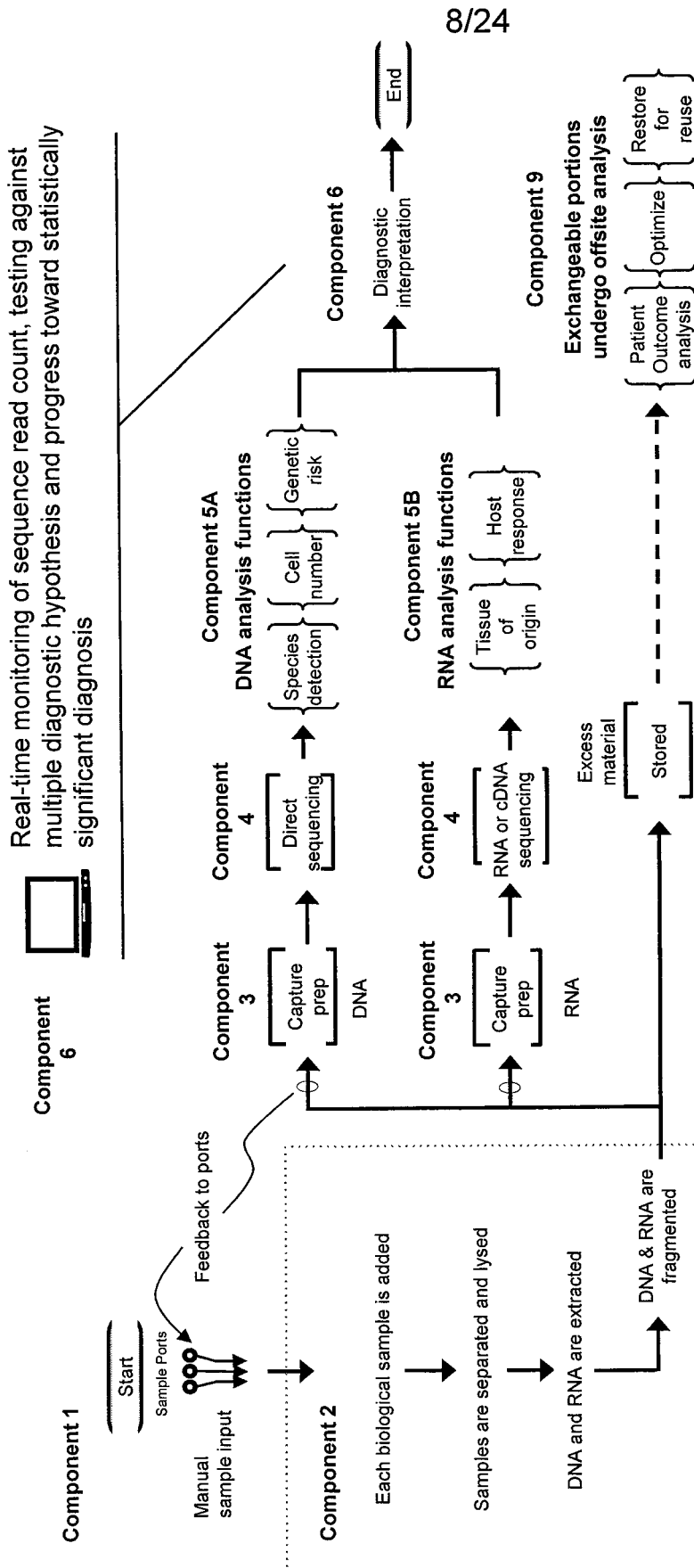


FIG. 7

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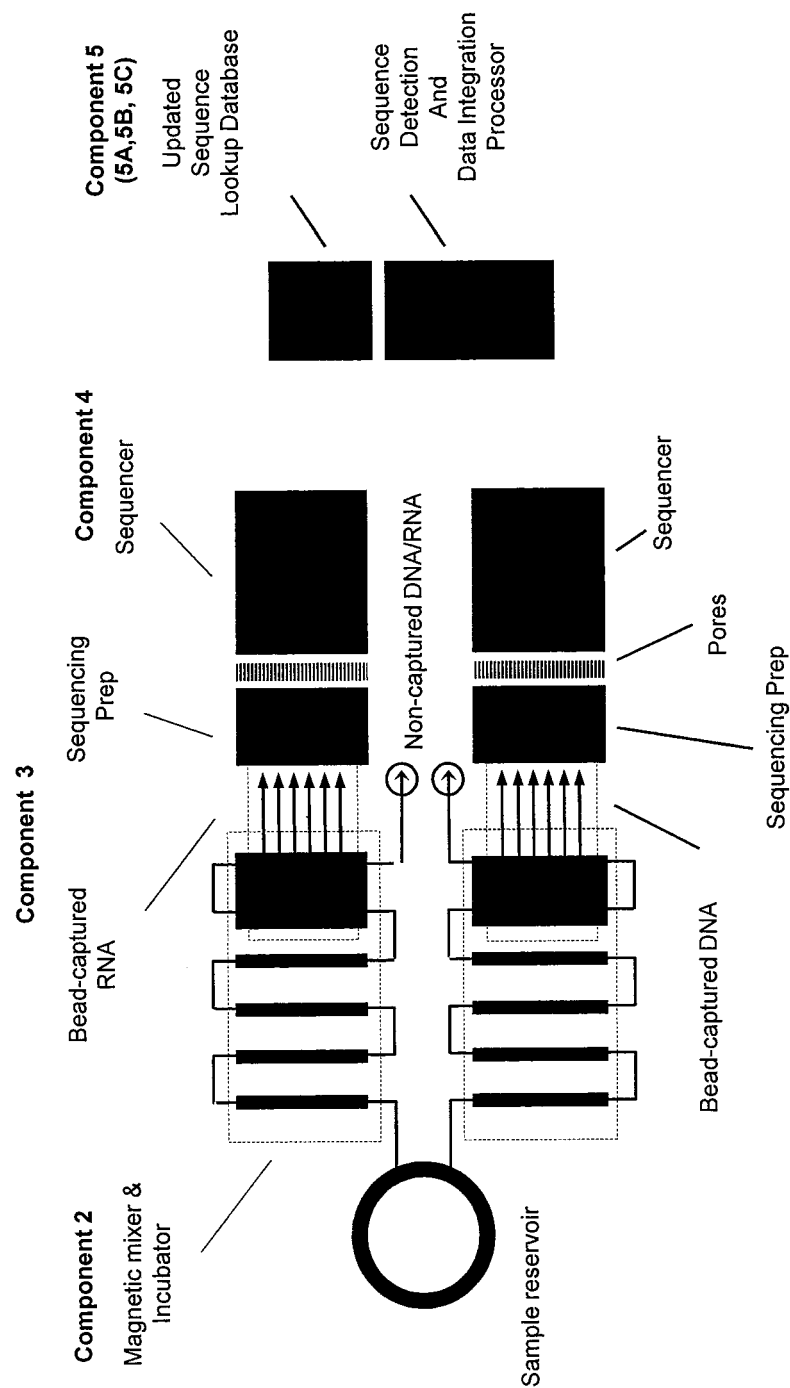


FIG. 8

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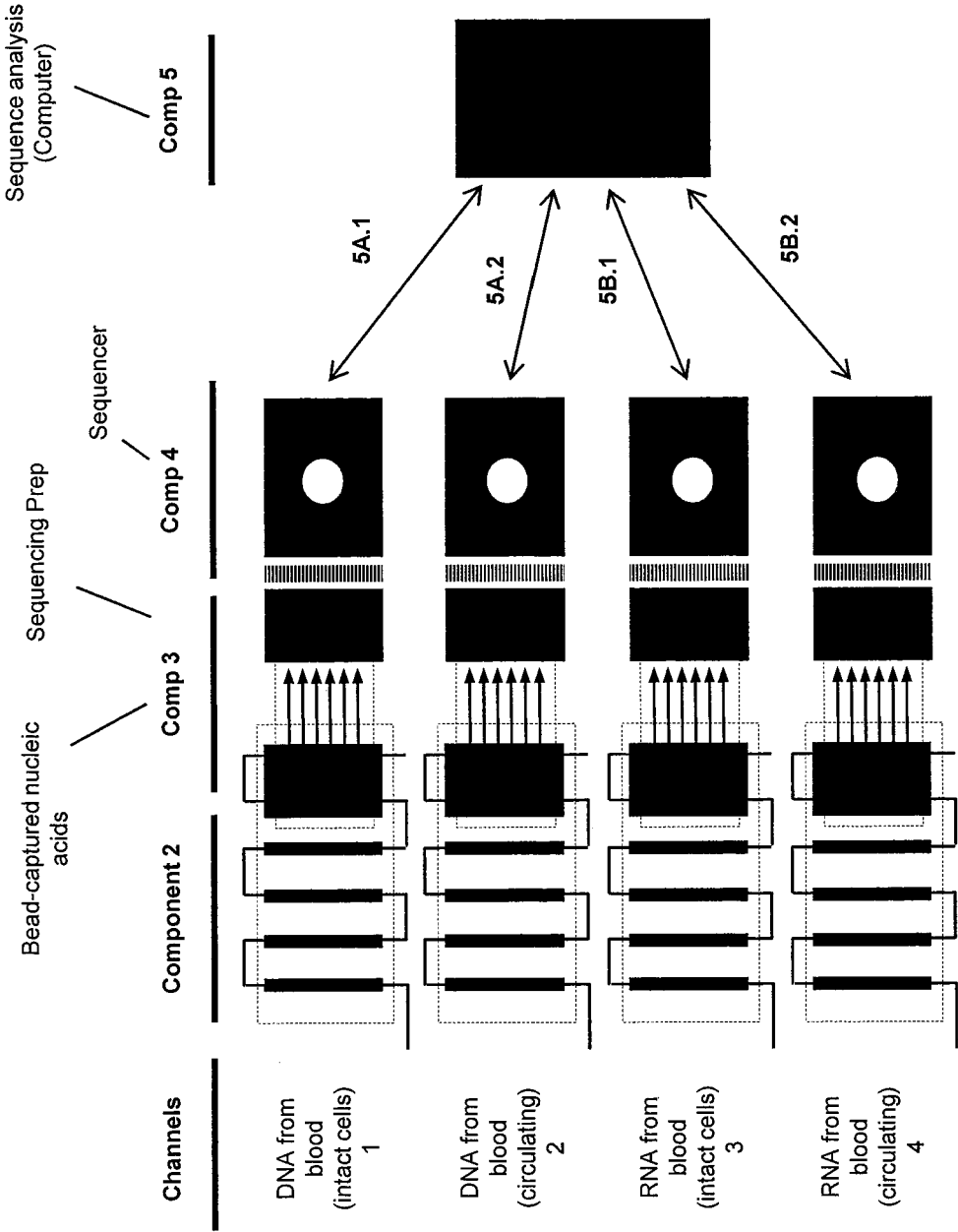


FIG. 9A

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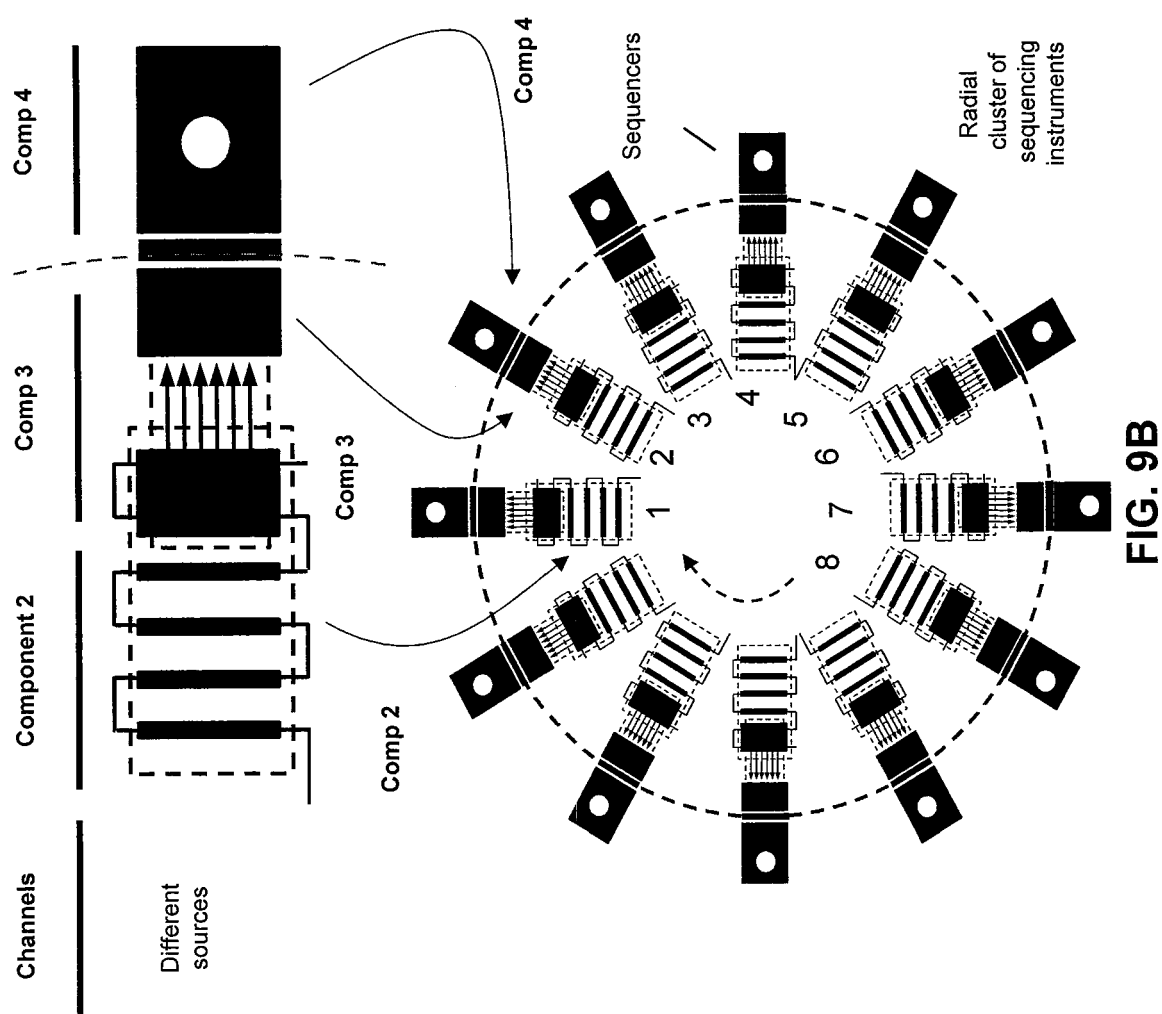
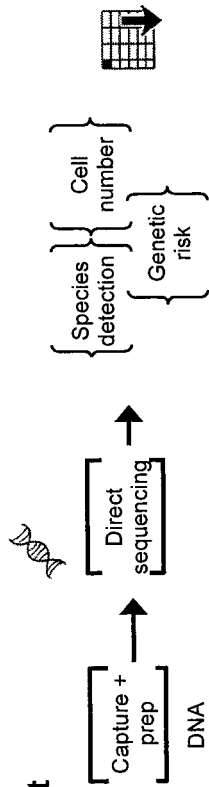
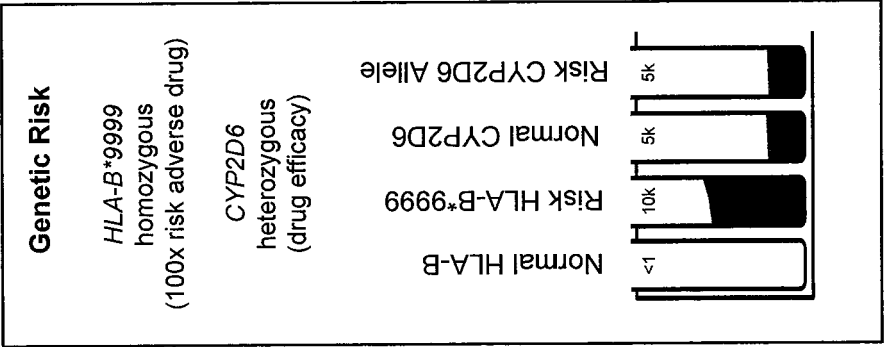


FIG. 10A
DNA analysis component

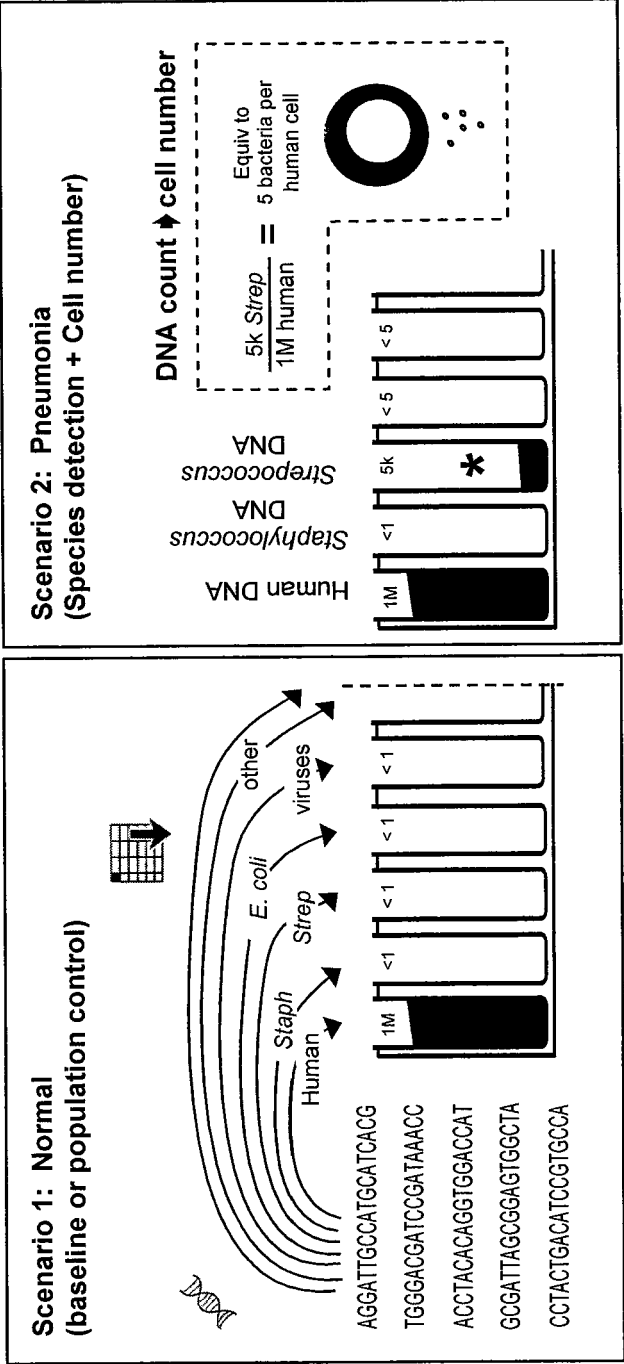


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Reads sorted by species of origin and counted

FIG. 10B



Co-detection of human and pathogen DNA

FIG. 10C

Co-identification of risk alleles

FIG. 10D

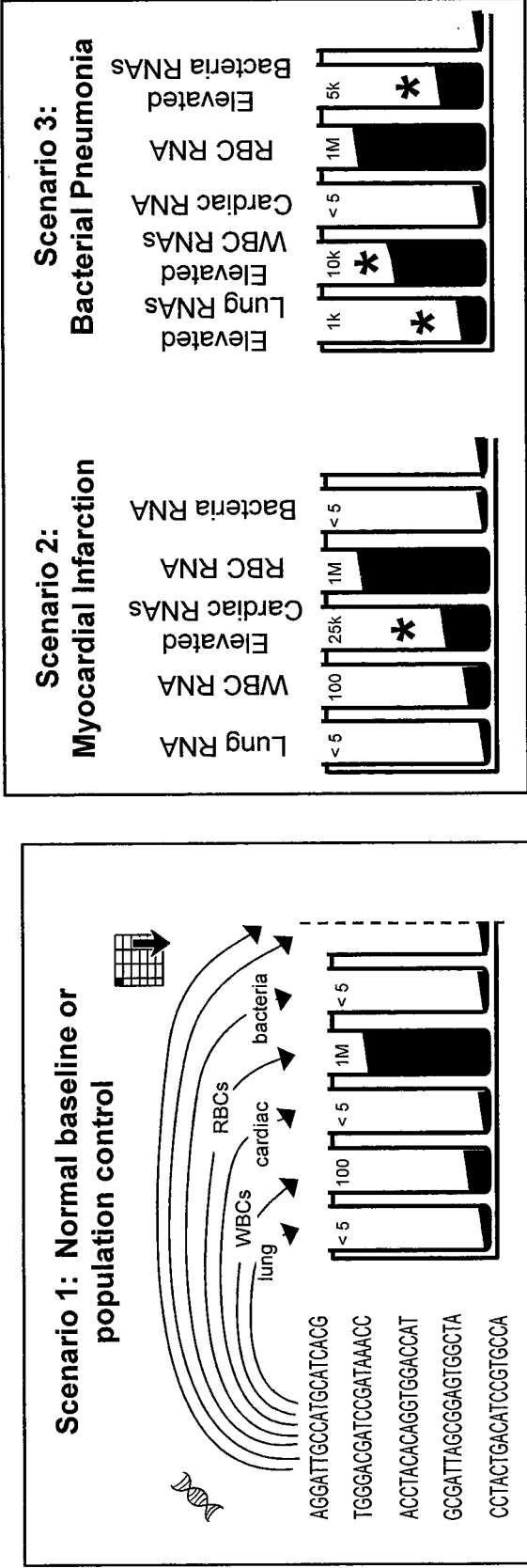
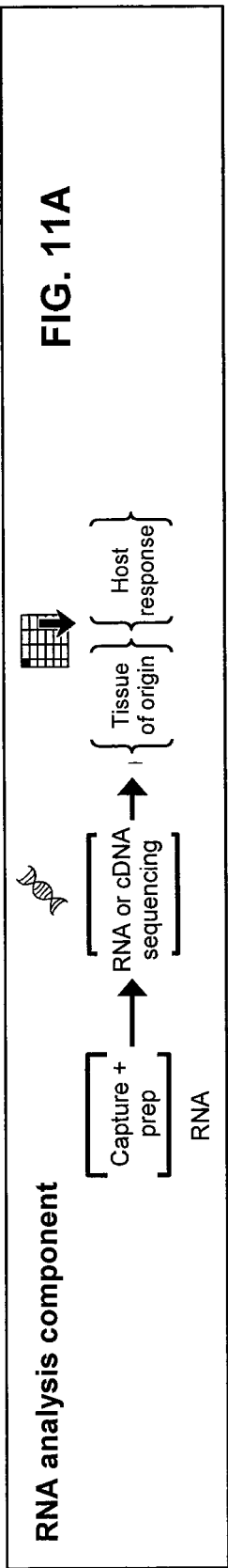


FIG. 11B

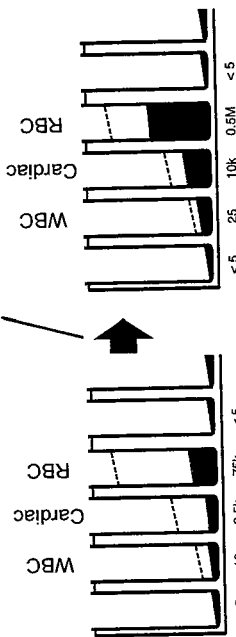
Cumulative detection of RNAs from different tissues and organisms in two disease settings

FIG. 11C

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FIG. 12A

Over time or increased number
cell analyzed



Quantity of DNA analyzed or counted

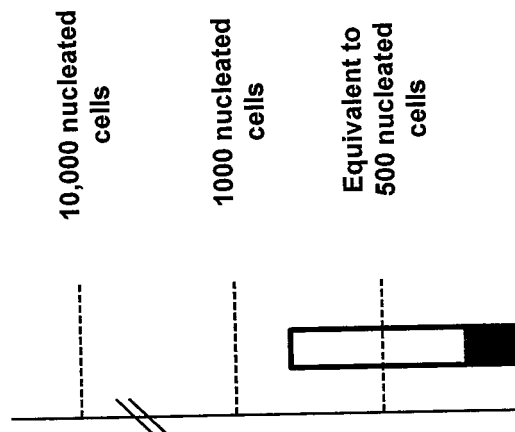
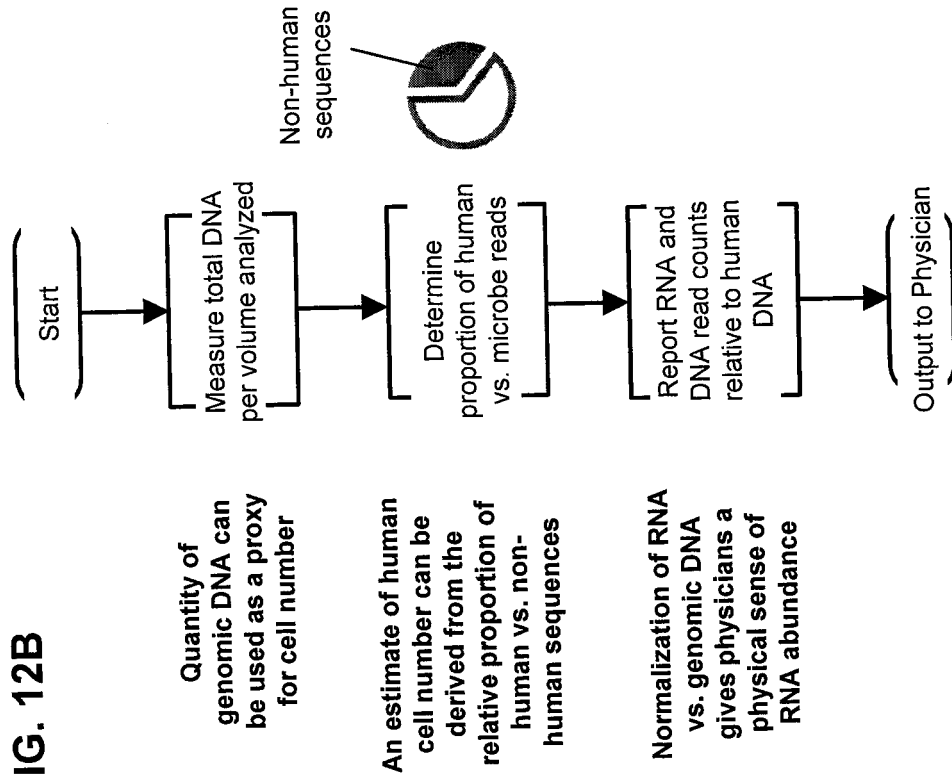
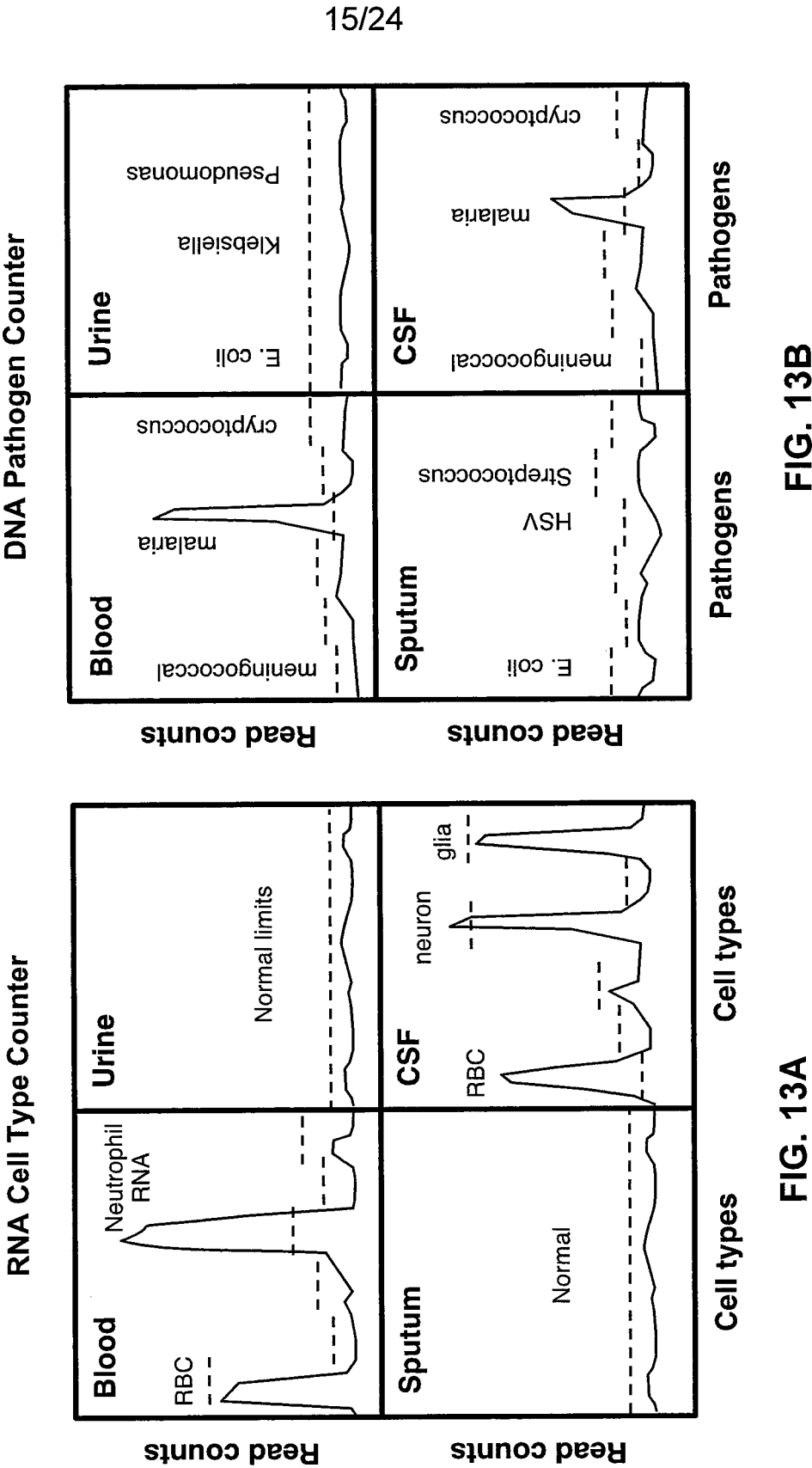


FIG. 12B





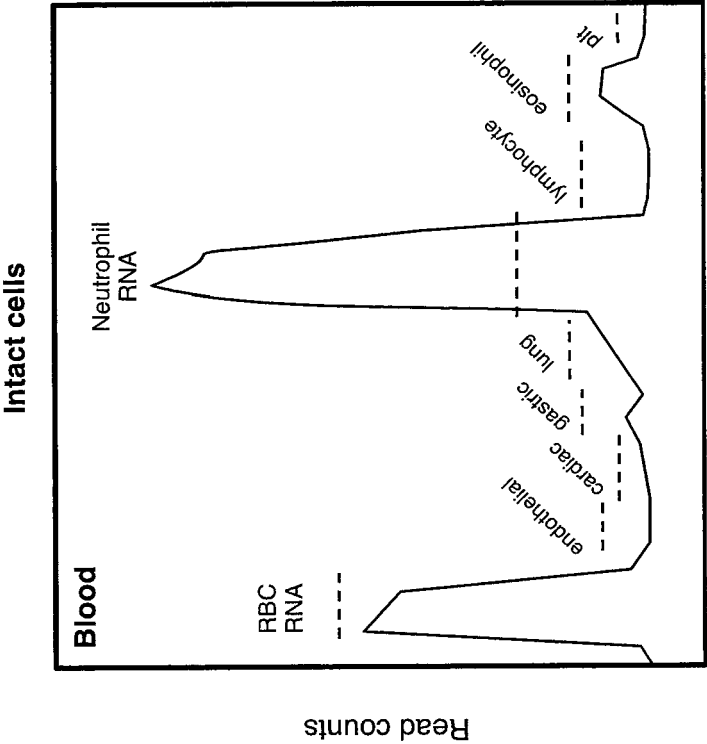


FIG. 14B

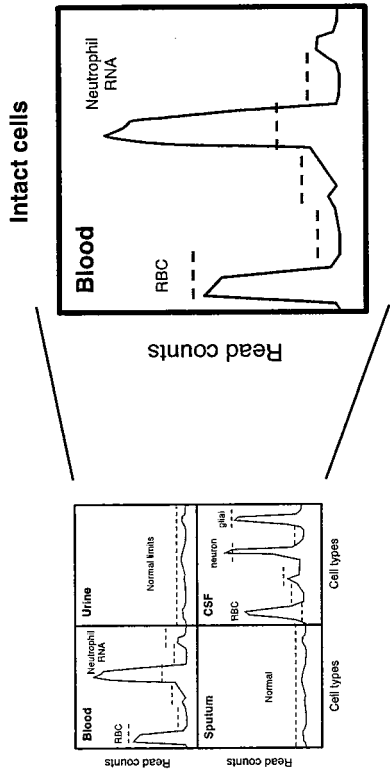
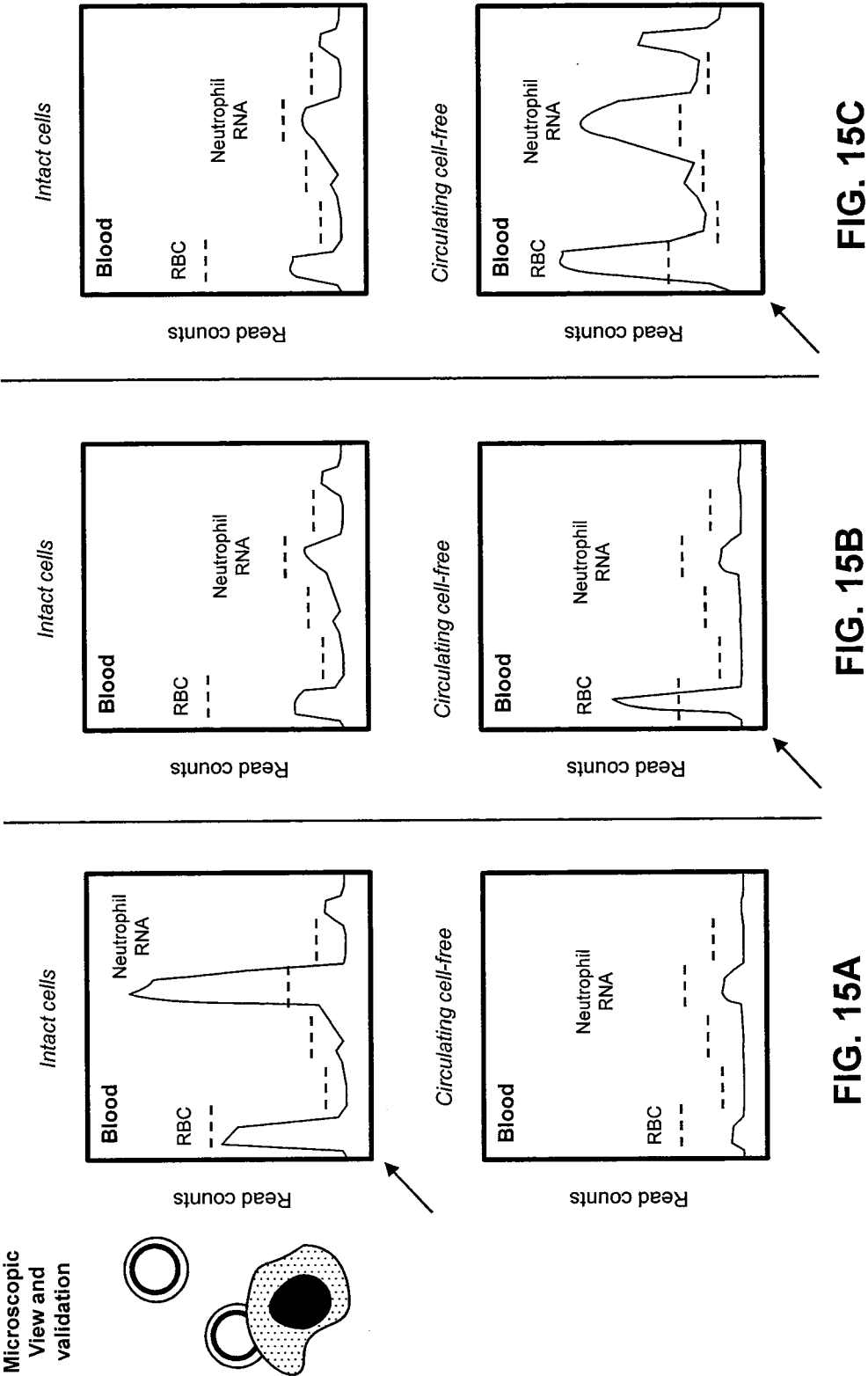


FIG. 14A

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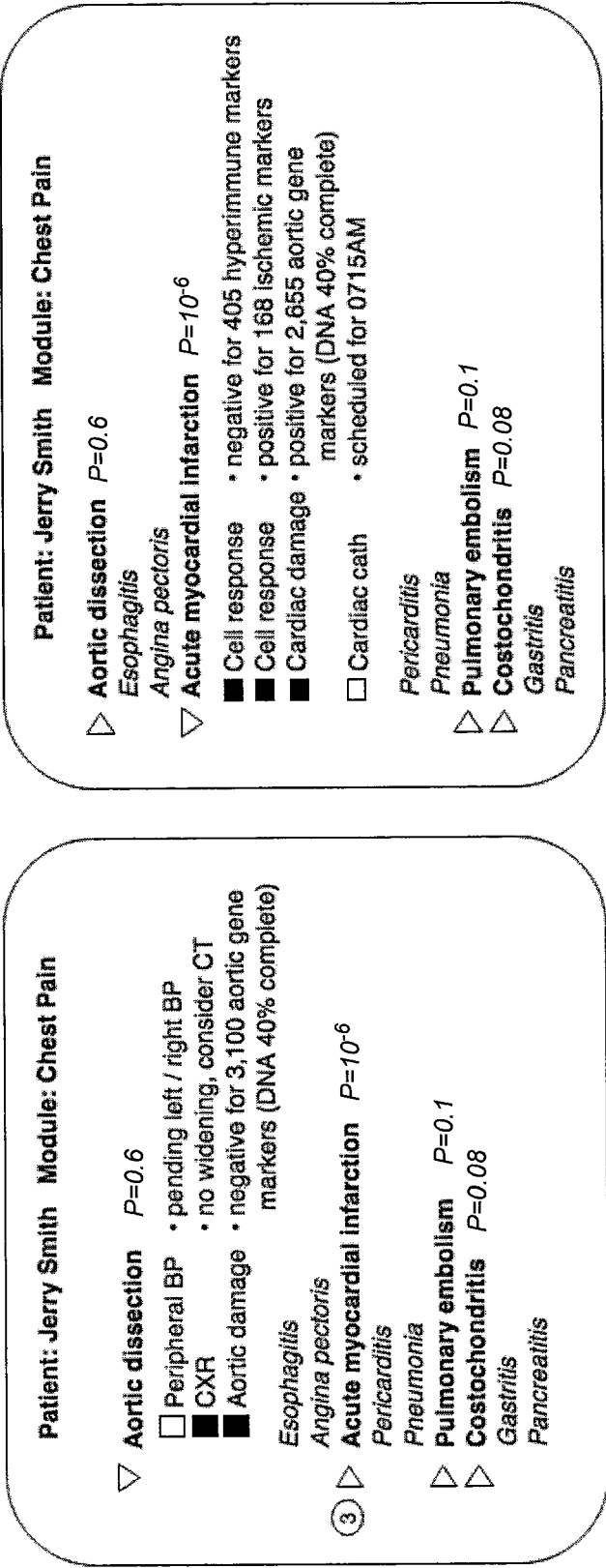


FIG. 16B

FIG. 16A

Patient: Jerry Smith Module: Chest Pain	
Reported History of Present Illness	Summary of DNA/RNA Results
Location – Chest	Cardiac RNA detected
Quality – Pain	RNA indicates cellular damage
Severity – 6	RNA level threshold
Duration – 1 day	Histone/RNA support acute
Timing – throbbing	No evid of skeletal muscle damage
Context – with exertion	No evid of skeletal muscle damage
Modifying – none	No evid of infection
Other Symptoms – arm pain	No evid of arm damage

FIG. 16C

FIG. 17A

Early results (inconclusive)

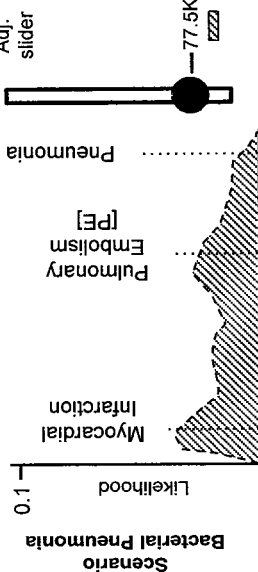


FIG. 17B Partial results
(trajectory)

partial results
(trajectory)

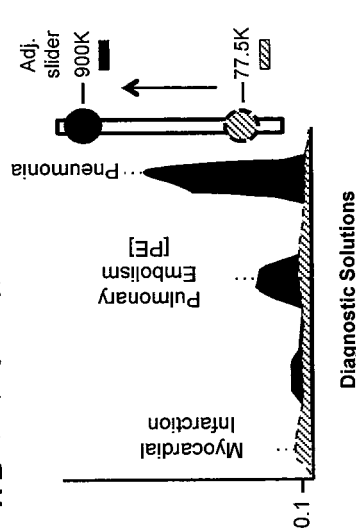


FIG. 17C

Final results (complete)

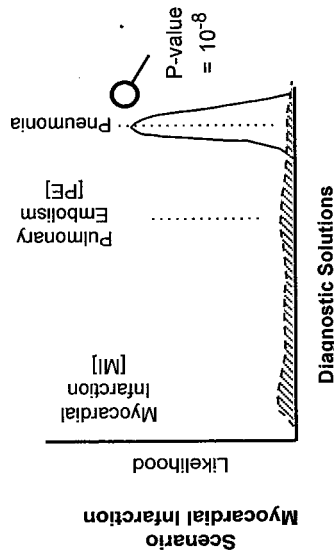


FIG. 17D

Early results (inconclusive)

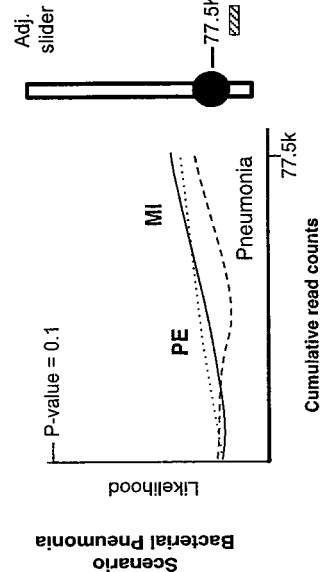


FIG. 17E
Partial results
(trajectory)

Partial results (trajectory)

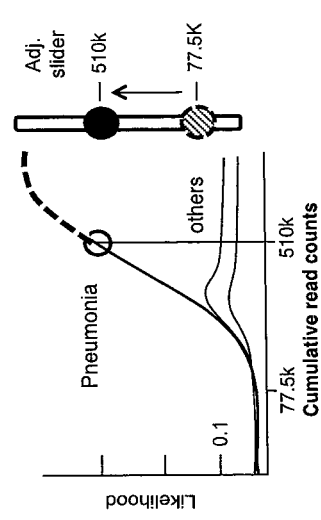
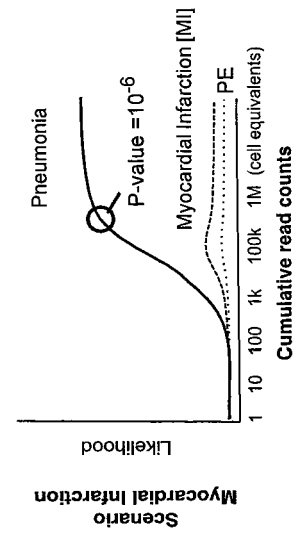
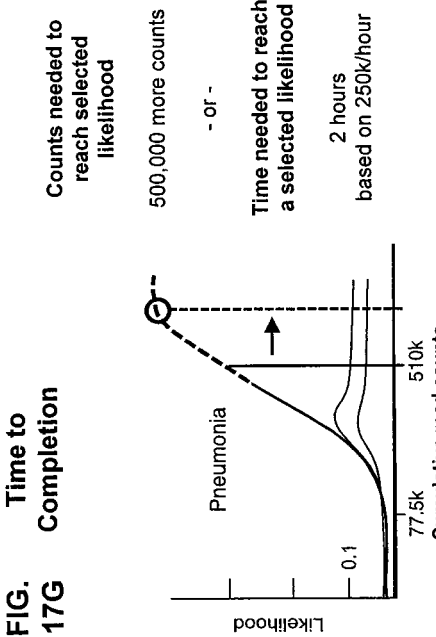
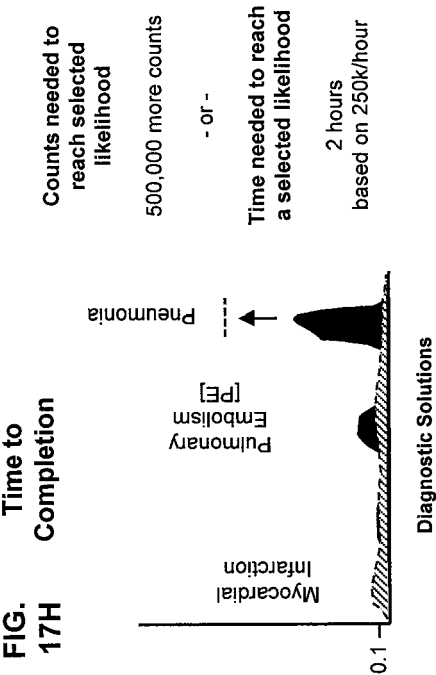
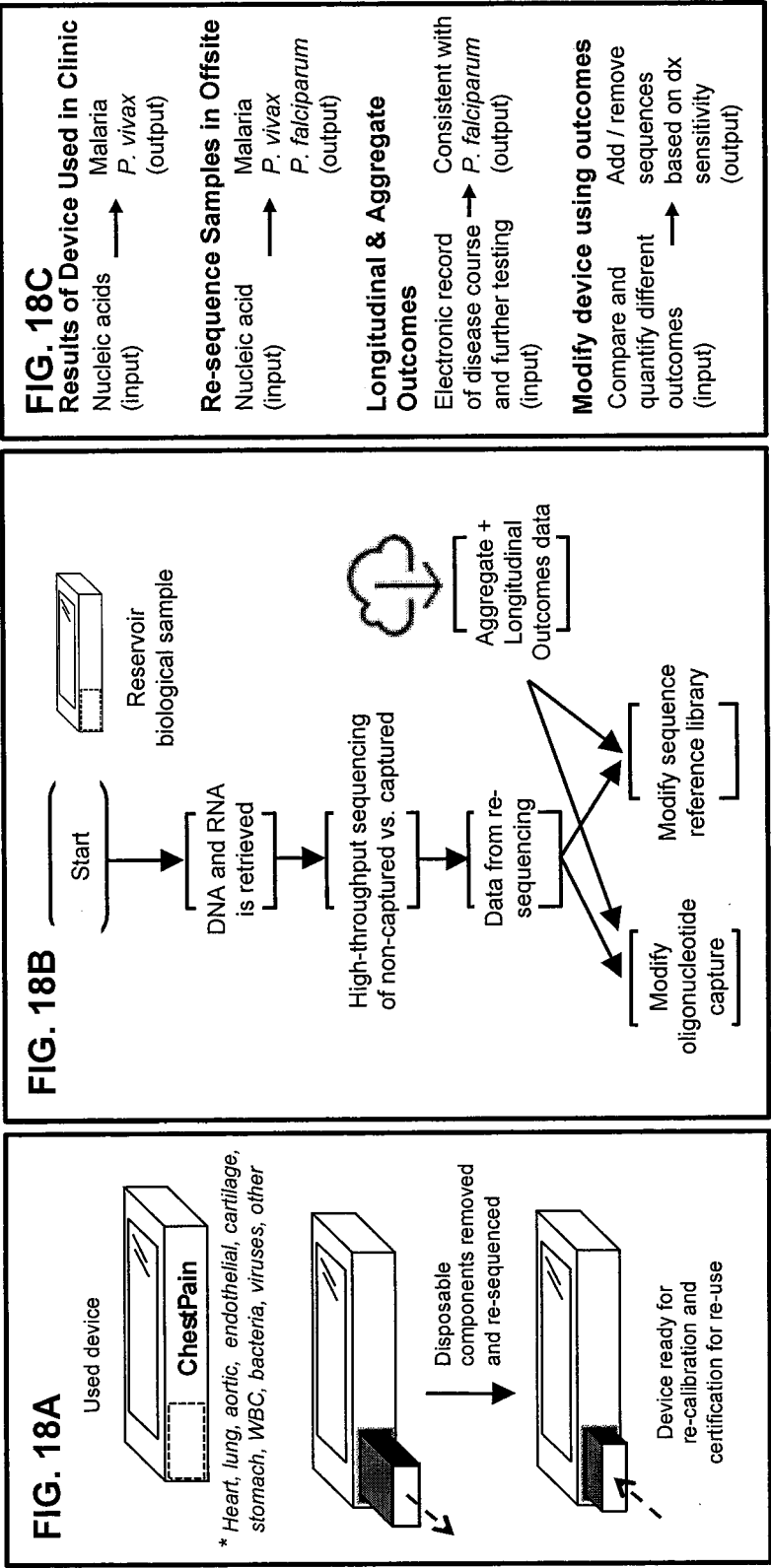


FIG. 17F

Final results (complete)







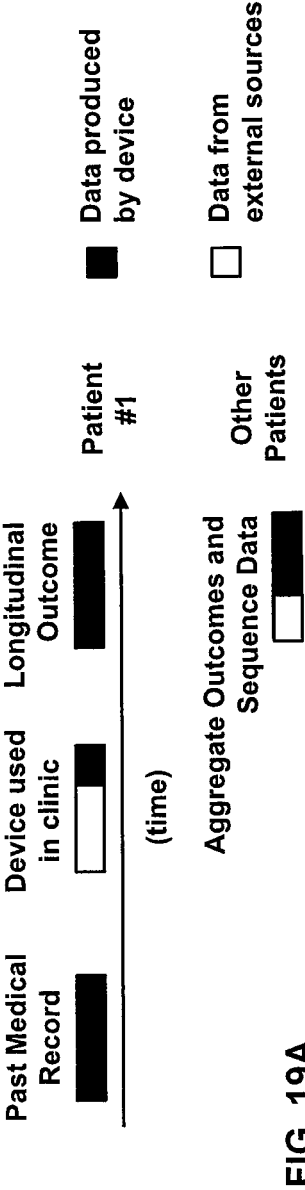


FIG. 19B

MATCHED OUTCOMES

MISMATCHED OUTCOMES

	External Data	Device Data	External Data	Device Data
Test Values (CPT, LOINC)	Test1	NSeq4	Test101	NSeq24
Inferred Values (Site, Resp, Micro)	Site3	Site3	Micro58	Micro1
Diagnosis (ICD9, ICD10)	Dx1	Dx1	Dx20	Dx20.1
Treatment or Medications (CPT, NDC, etc)	Tx1	Tx1	Tx4	Tx5

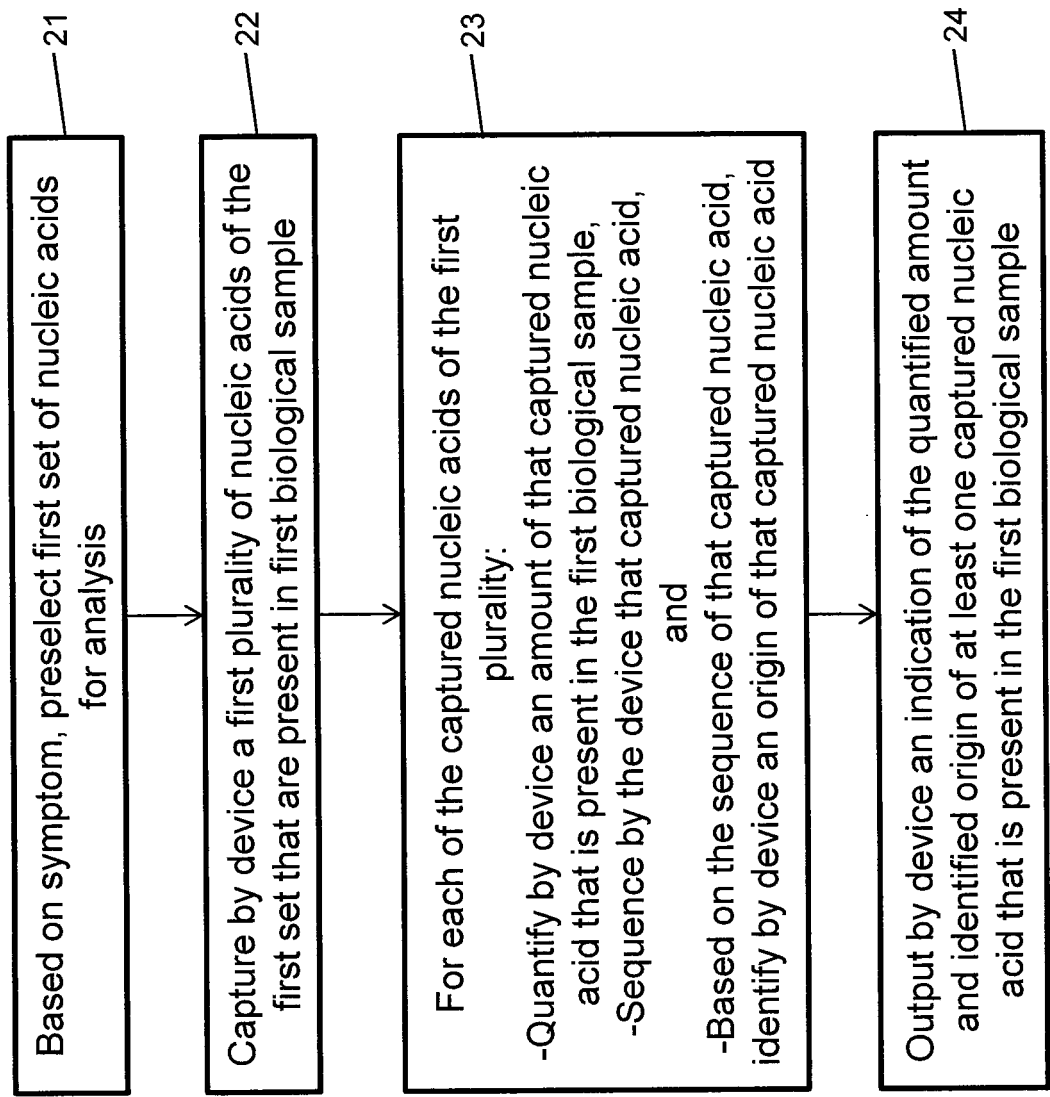


FIG. 20