

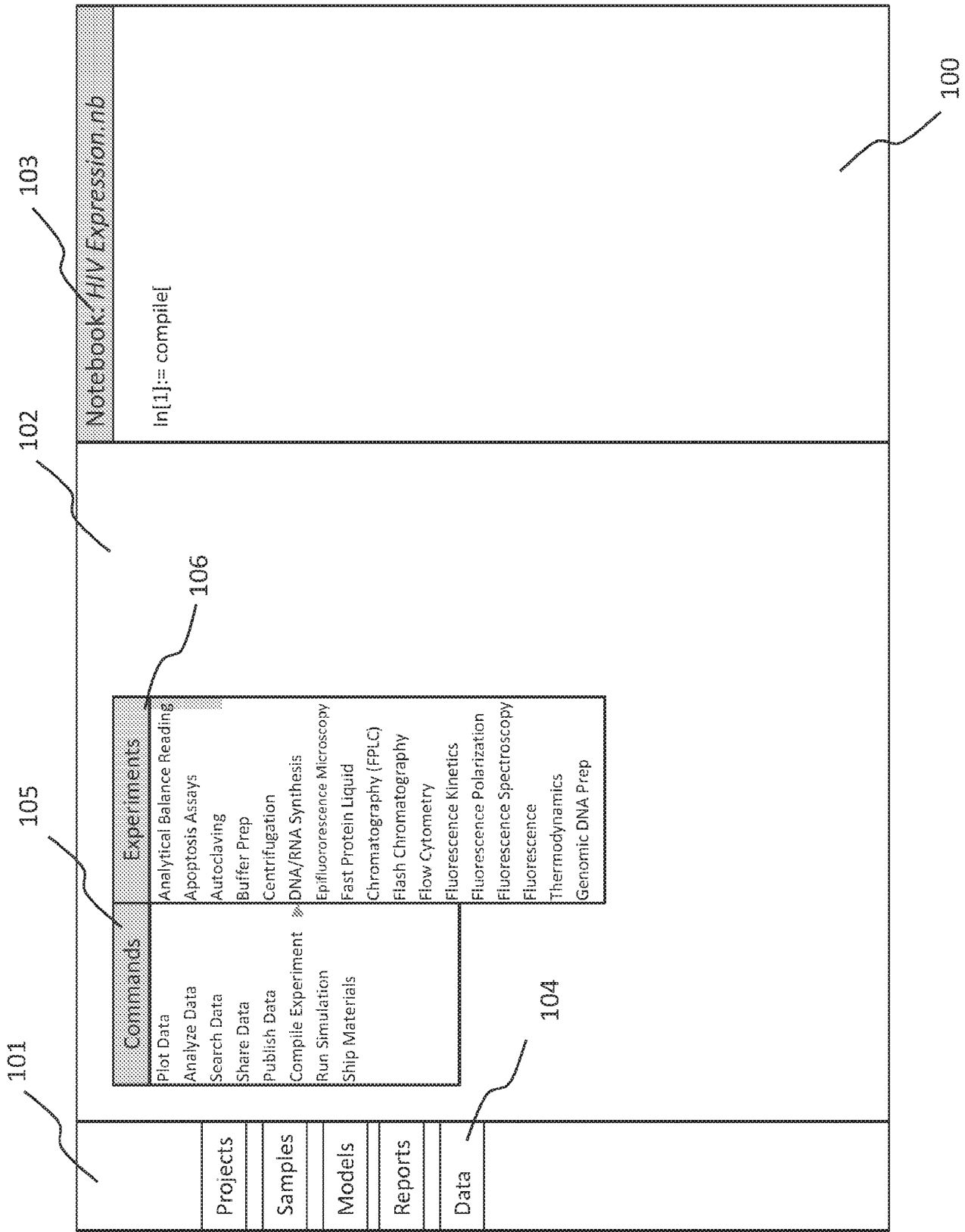


FIG. 1

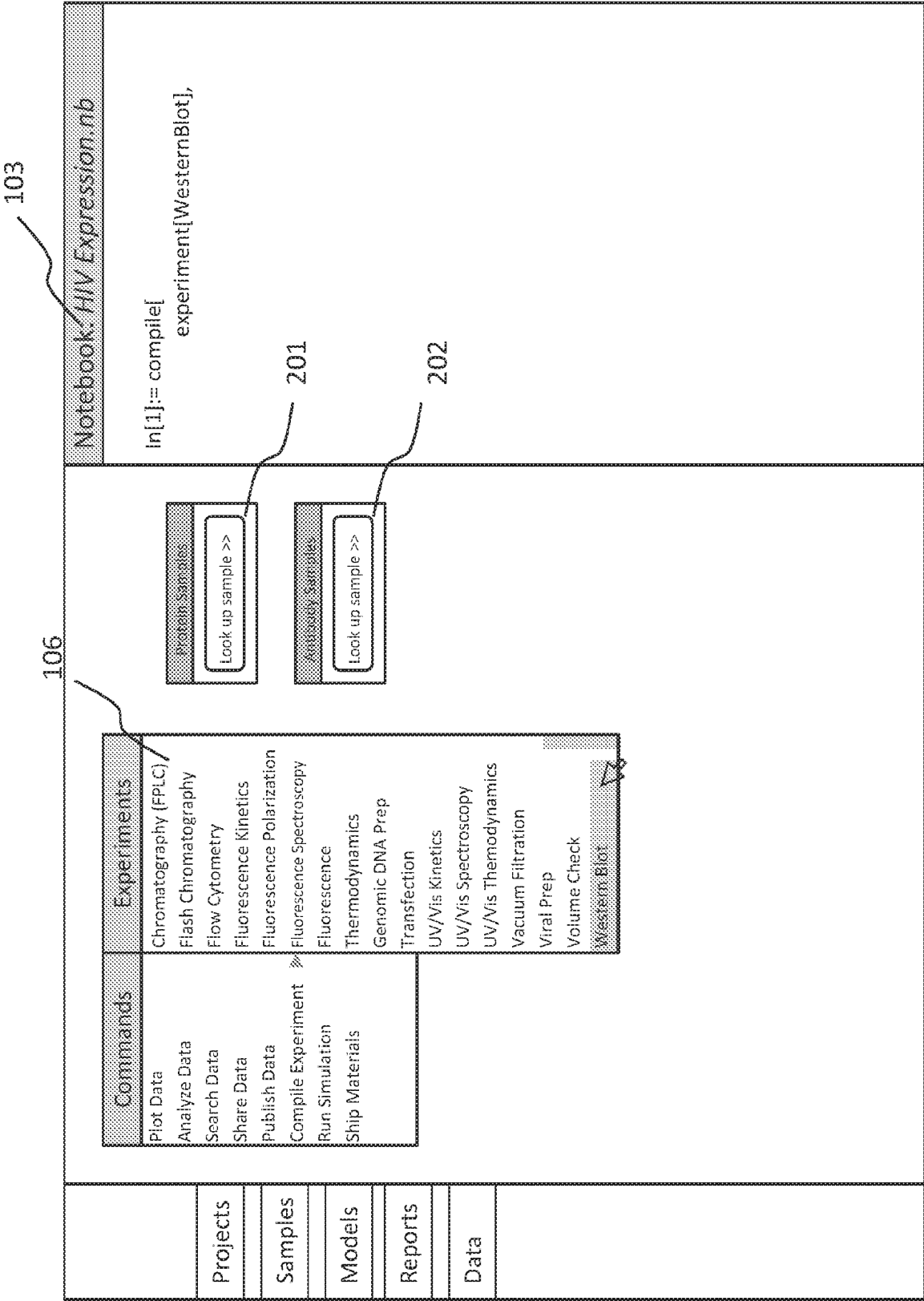


FIG. 2

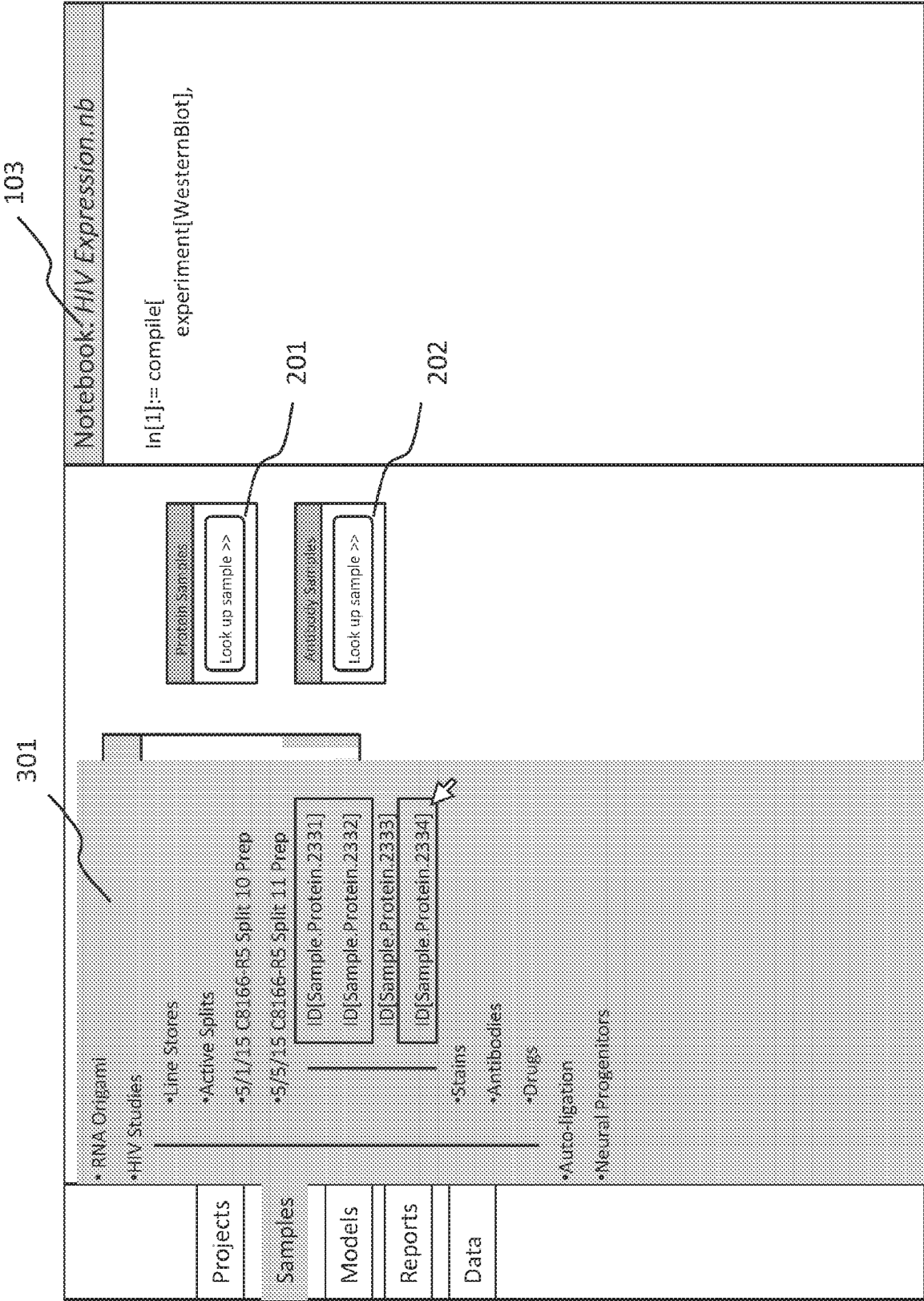


FIG. 3

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Projects

Samples

Models

Reports

Data

Commands	Experiments
Plot Data	Thermodynamics
Analyze Data	Genomic DNA Prep
Search Data	Transfection
Share Data	UV/Vis Kinetics
Publish Data	UV/Vis Spectroscopy
Compile Experiment	UV/Vis Thermodynamics
Run Simulation	Vacuum Filtration
Ship Materials	Viral Prep
	Volume Check
	Western Blot

Protein Samples

ID[Sample,Protein,2331]
ID[Sample,Protein,2332]
ID[Sample,Protein,2334]

Antibody Samples

ID[Sample,Antibody,56]

Notebook: HIV Expression.nb

In[1]:= compile[
 experiment[WesternBlot],
 {ID[Sample,Protein,2331],
 ID[Sample,Protein,2332],
 ID[Sample,Protein,2334]},
 ID[Sample,Antibody,56],
]

FIG. 4

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Projects

Samples

Models

Reports

Data

Commands	Experiments
Plot Data	Thermodynamics
Analyze Data	Genomic DNA Prep
Search Data	Transfection
Share Data	UV/Vis Kinetics
Publish Data	UV/Vis Spectroscopy
Compile Experiment	UV/Vis Thermodynamics
Run Simulation	Vacuum Filtration
Ship Materials	Viral Prep
	Volume Check
	Western Blot

Protein Samples

ID[Sample,Protein,2331]
ID[Sample,Protein,2332]
ID[Sample,Protein,2334]

Antibody Samples

ID[Sample,Antibody,56]

Notebook: HIV Expression.nb

In[1]:= compile[
 experiment[WesternBlot],
 {ID[Sample,Protein,2331],
 ID[Sample,Protein,2332],
 ID[Sample,Protein,2334]},
 ID[Sample,Antibody,56],
 SampleVolume -> 5 Micro Liters,
 SeparationTime -> 27 Minutes,
 SeparationVoltage -> 375 Volts

Variables

Replicates

Denature

Sample Volume

Antibody Volume

Luminal Volume

Peroxide Volume

HRP Volume

1

5

10 µL

5 µL

150 µL

10 µL

Primary Washes

Primary Wash Volume

Primary Wash Time

Secondary Washes

Secondary Wash Volume

Secondary Wash Time

Separation Time

2

150 µL

30 (m)

1

150 µL

30 (m)

25 (m)

Separation Voltage

Stacking Time

Stacking Voltage

Exposure Time

Number of Blockings

Block Volume

Block Time

350 (V)

3 (m)

200 (V)

180 (s)

1

200 µL

5 (m)

Execute Experiment

FIG. 5

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Projects

Samples

Models

Reports

Data

Commands	Experiments
Plot Data	Thermodynamics
Analyze Data	Genomic DNA Prep
Search Data	Transfection
Share Data	UV/Vis Kinetics
Publish Data	UV/Vis Spectroscopy
Compile Experiment	UV/Vis Thermodynamics
Run Simulation	Vacuum Filtration
Ship Materials	Viral Prep
	Volume Check
	Western Blot

Protein Samples

ID[Sample,Protein,2331]
ID[Sample,Protein,2332]
ID[Sample,Protein,2334]

Antibody Samples

ID[Sample,Antibody,56]

Notebook: HIV Expression.nb

In[1]:= compile[
 experiment[WesternBlot],
 {ID[Sample,Protein,2331],
 ID[Sample,Protein,2332],
 ID[Sample,Protein,2334]},
 ID[Sample,Antibody,56],
 SampleVolume -> 5 Micro Liters,
 SeparationTime -> 27 Minutes,
 SeparationVoltage -> 375 Volts
]

Variables

Replicates	1	Primary Washes	2	Separation Voltage	375 (V)
Denature	False	Primary Wash Volume	150 (μL)	Stacking Time	3 (m)
Sample Volume	5 (μL)	Primary Wash Time	30 (m)	Stacking Voltage	200 (V)
Antibody Volume	5 (μL)	Secondary Washes	1	Exposure Time	180 (s)
Luminal Volume	150 (μL)	Secondary Wash Volume	150 (μL)	Number of Blockings	1
Peroxide Volume	150 (μL)	Secondary Wash Time	30 (m)	Block Volume	200 (μL)
HBB Volume	10 (μL)	Separation Time	27 (m)	Block Time	5 (m)

Execute Experiment

501

601

FIG. 6A

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Projects

Samples

Models

Reports

Data

Commands	Experiments
Plot Data	Thermodynamics
Analyze Data	Genomic DNA Prep
Search Data	Transfection
Share Data	UV/Vis Kinetics
Publish Data	UV/Vis Spectroscopy
Compile Experiment	UV/Vis Thermodynamics
Run Simulation	Vacuum Filtration
Ship Materials	Viral Prep
	Volume Check
	Western Blot

Protein Samples

ID[Sample,Protein,2331]
ID[Sample,Protein,2332]
ID[Sample,Protein,2334]

Antibody Samples

ID[Sample,Antibody,56]

Notebook: HIV Expression.nb

In[1]:= compile[
 experiment[WesternBlot],
 {ID[Sample,Protein,2331],
 ID[Sample,Protein,2332],
 ID[Sample,Protein,2334]},
 ID[Sample,Antibody,56],
 SampleVolume -> 5 Micro Liters,
 SeparationTime -> 27 Minutes,
 SeparationVoltage -> 375 Volts
 Warning: Separation voltage may be too
 high to achieve optimal results

Variables

Replicates	1	Primary Washes	2	Separation Voltage	375 (V)
Denature	False	Primary Wash Volume	150 (μL)	Stacking Time	3 (m)
Sample Volume	5 (μL)	Primary Wash Time	30 (m)	Stacking Voltage	200 (V)
Antibody Volume	5 (μL)	Secondary Washes	1	Exposure Time	180 (s)
Luminal Volume	150 (μL)	Secondary Wash Volume	150 (μL)	Number of Blockings	1
Peroxide Volume	150 (μL)	Secondary Wash Time	30 (m)	Block Volume	200 (μL)
HRP Volume	10 (μL)	Separation Time	27 (m)	Block Time	5 (m)

Execute Experiment

FIG. 6B

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Projects

Samples

Models

Reports

Data

Success!

Your Western Blot Experiment was Sent to the Emerald Cloud Lab.

Notebook: HIV Expression.nb

In[1]:= compile[
 experiment[WesternBlot],
 {ID[Sample,Protein,2331],
 ID[Sample,Protein,2332],
 ID[Sample,Protein,2334]},
 ID[Sample,Antibody,56],
 SampleVolume -> 5 Micro Liters,
 SeparationTime -> 27 Minutes,
 SeparationVoltage -> 375 Volts
]

Out[1]= ID[Experiment,WesternBlot,1314]

FIG. 7

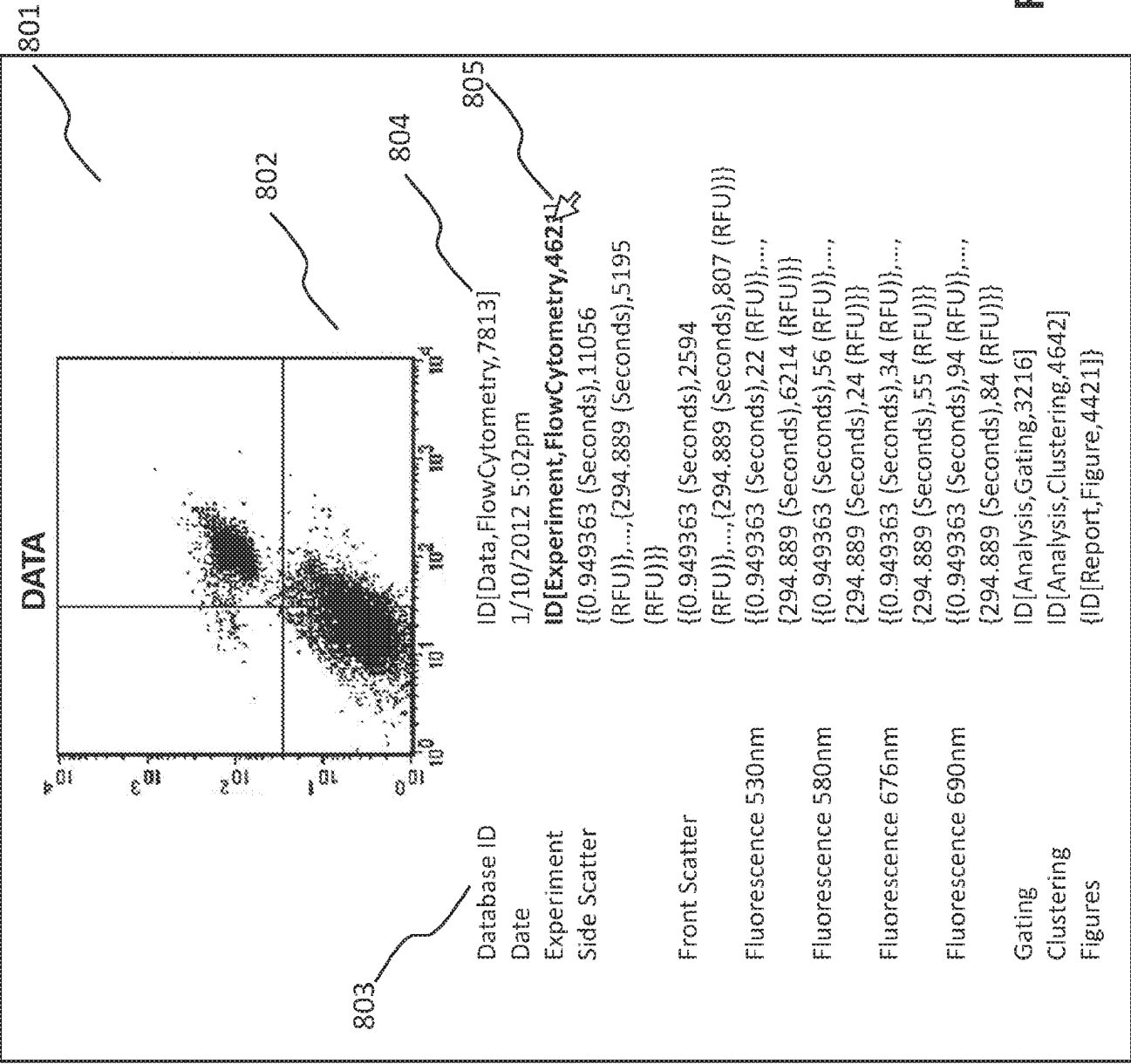


FIG. 8

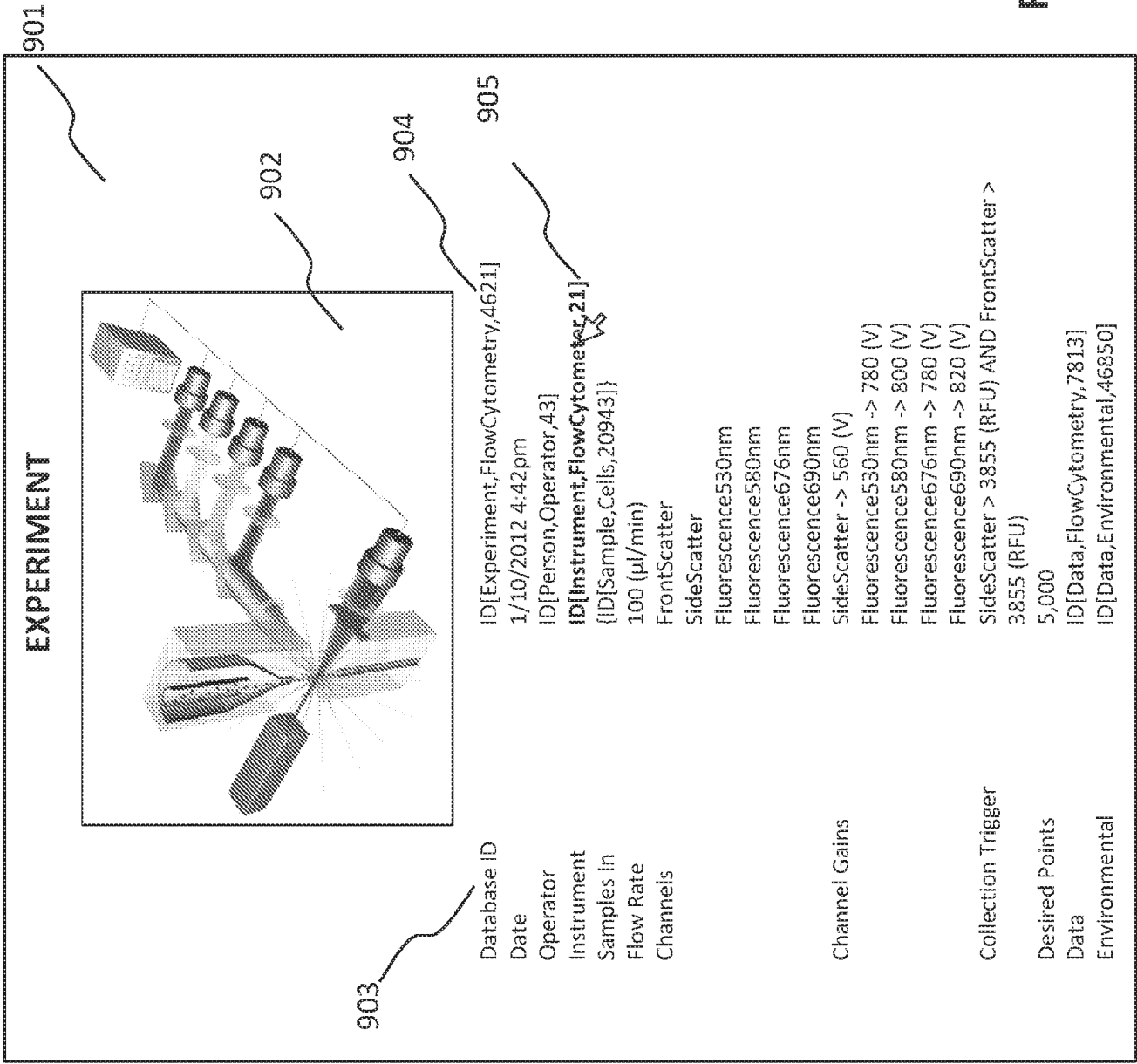
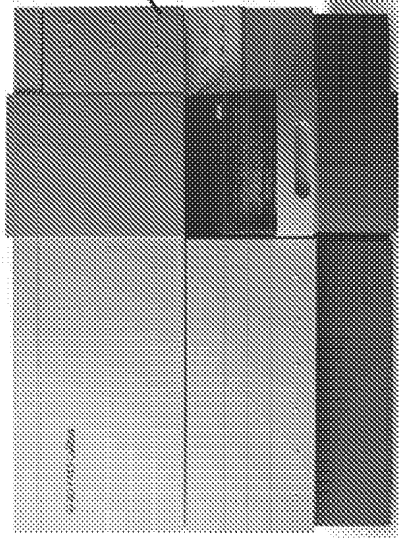


FIG. 9

1001

INSTRUMENT



1002

1004

1003

Database ID	ID[Instrument,FlowCytometer, 21]
Model	Stratadigm SE500
Date Installed	6/24/2011 3:00 pm
Manufacturer	ID[Company,Supplier,3421]
Serial Number	SEE5204071811-16
Software	CellCap True v3.1.0.50
Manual	ID[Report,PDF,5314]
Channels	FrontScatter SideScatter Fluorescence530nm Fluorescence580nm Fluorescence676nm Fluorescence690nm {488 (nm), 640 (nm)}
Lasers	150 (µl/min)
Max Flow Rate	20 (µl/min)
Min Flow Rate	1000 (V)
Max Channel Gain	100 (V)
Min Channel Gain	1000 (RFU)
Max Channel Detect	1 (RFU)
Min Channel Detect	

FIG. 10

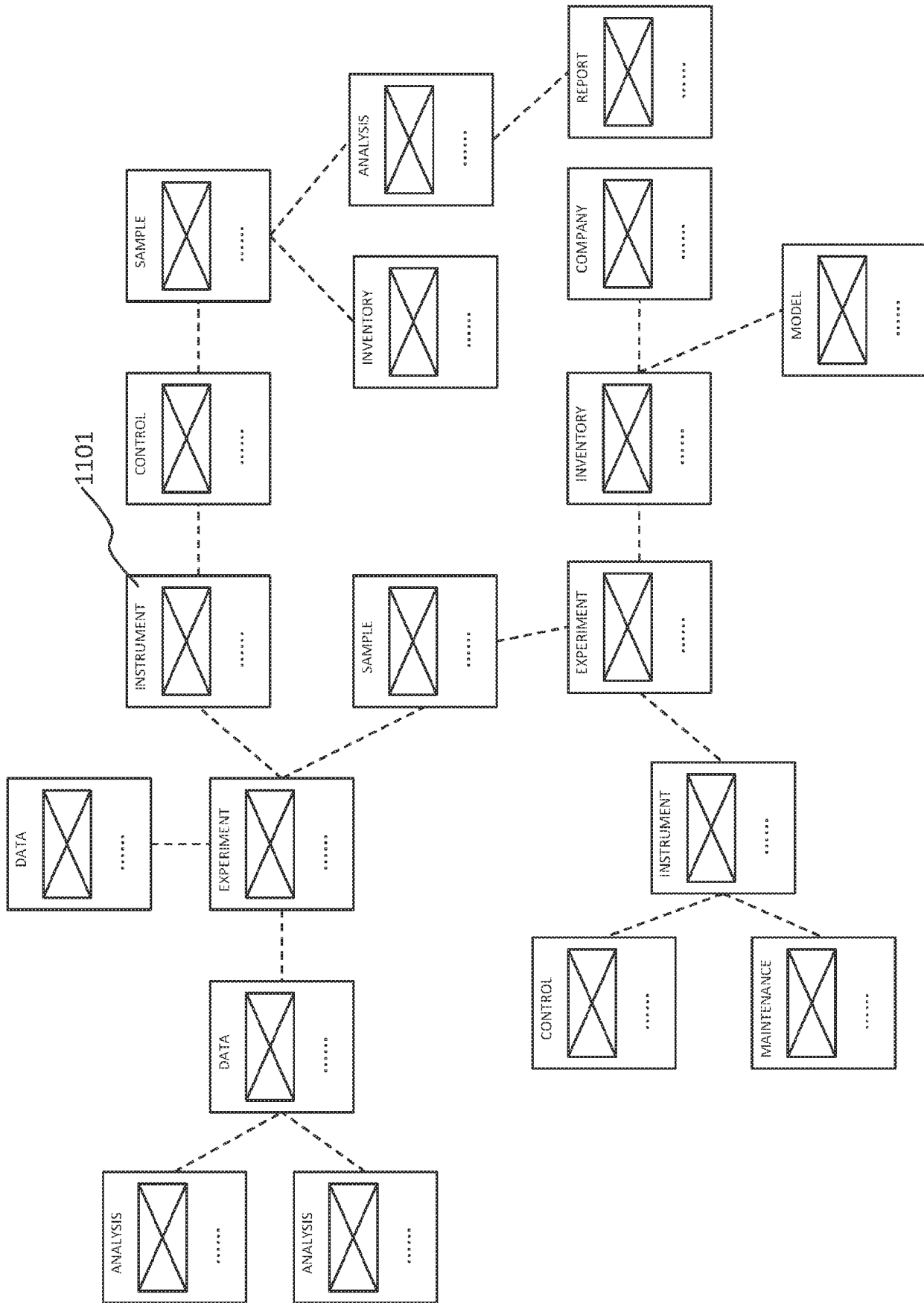


FIG. 11

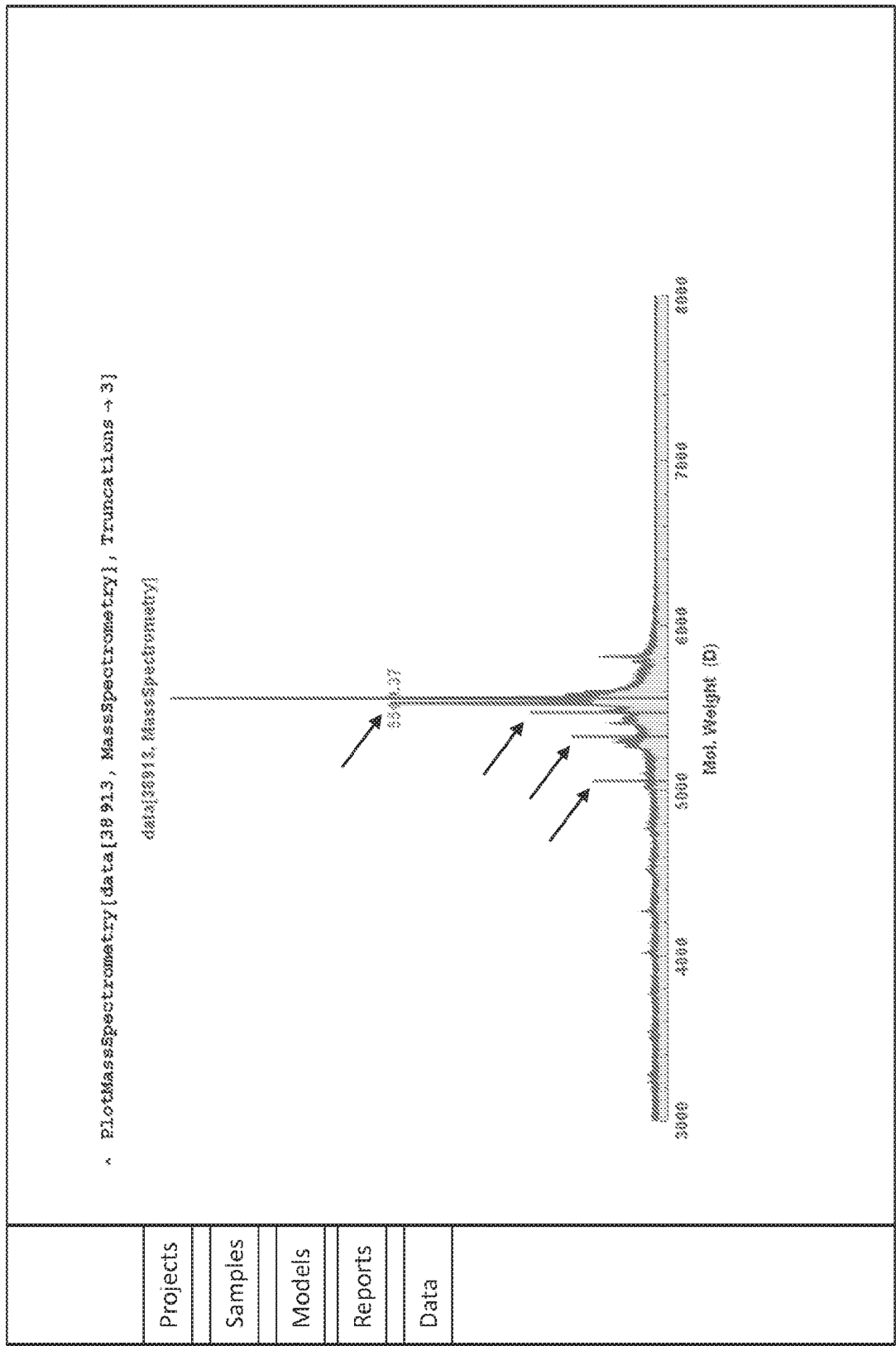


FIG. 12B



U2G

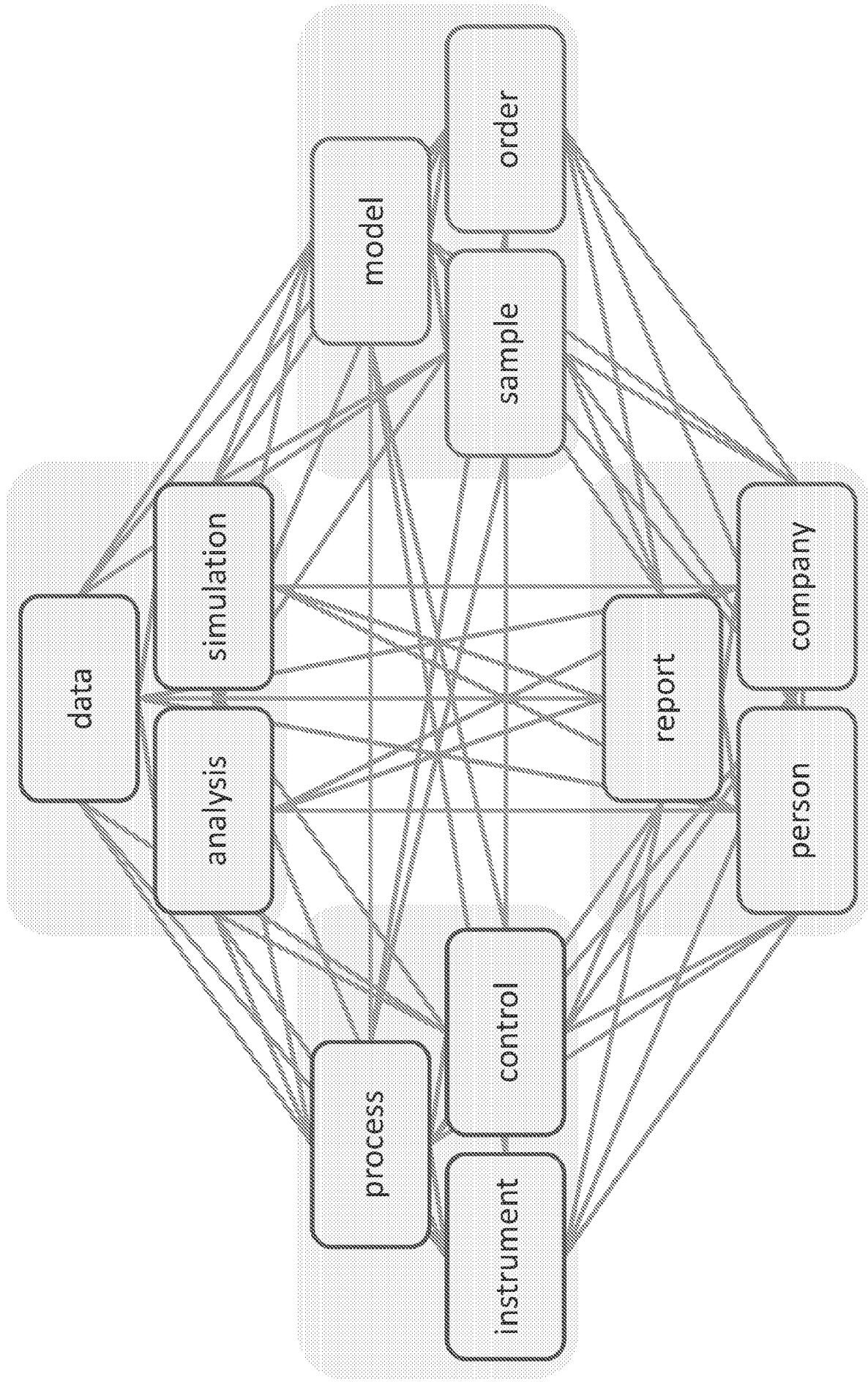


FIG. 13

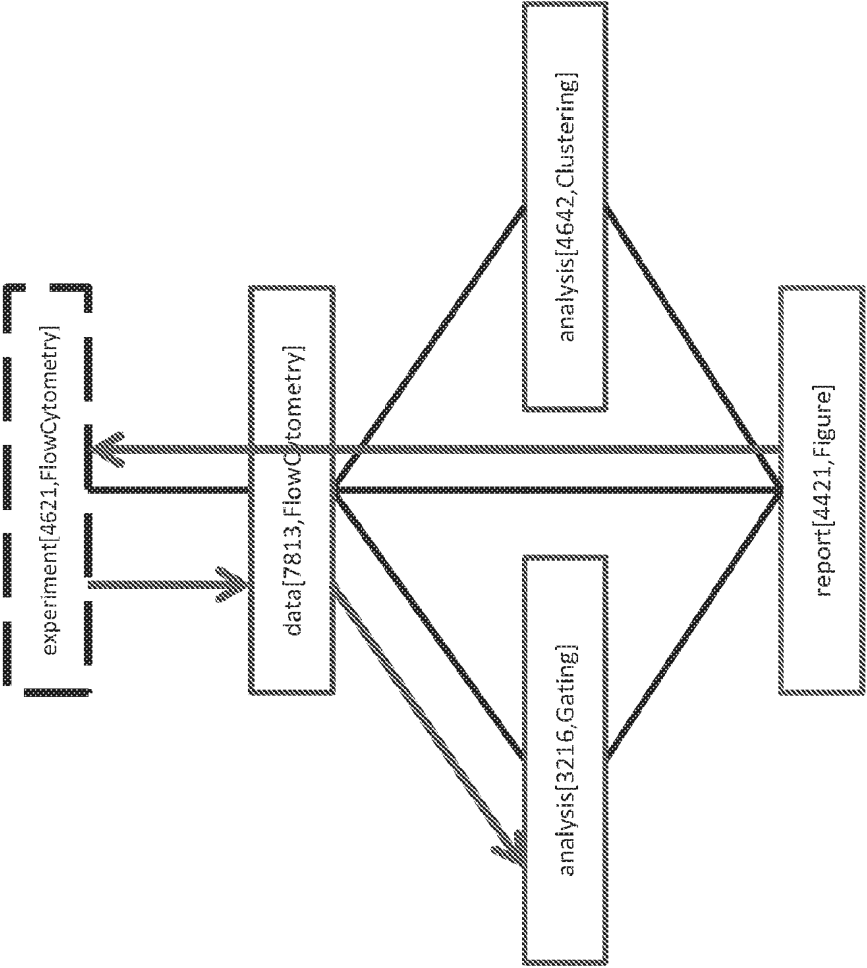


FIG. 14

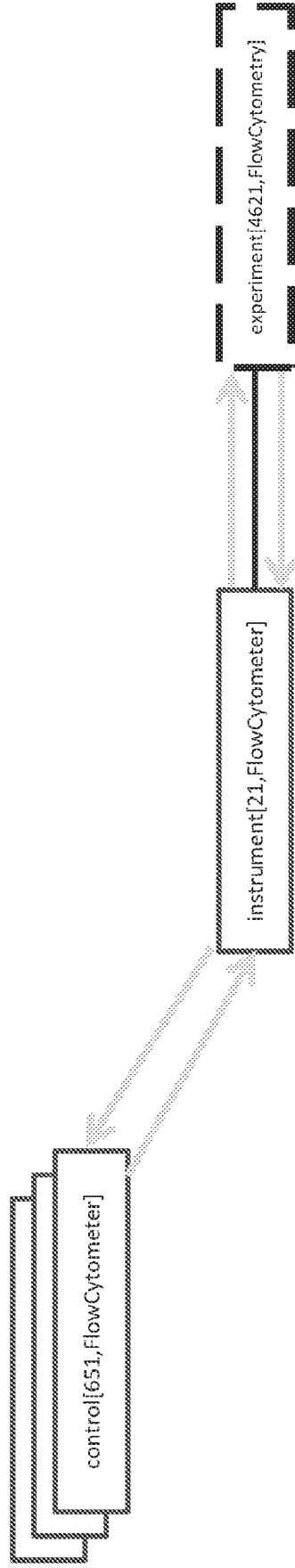


FIG. 15

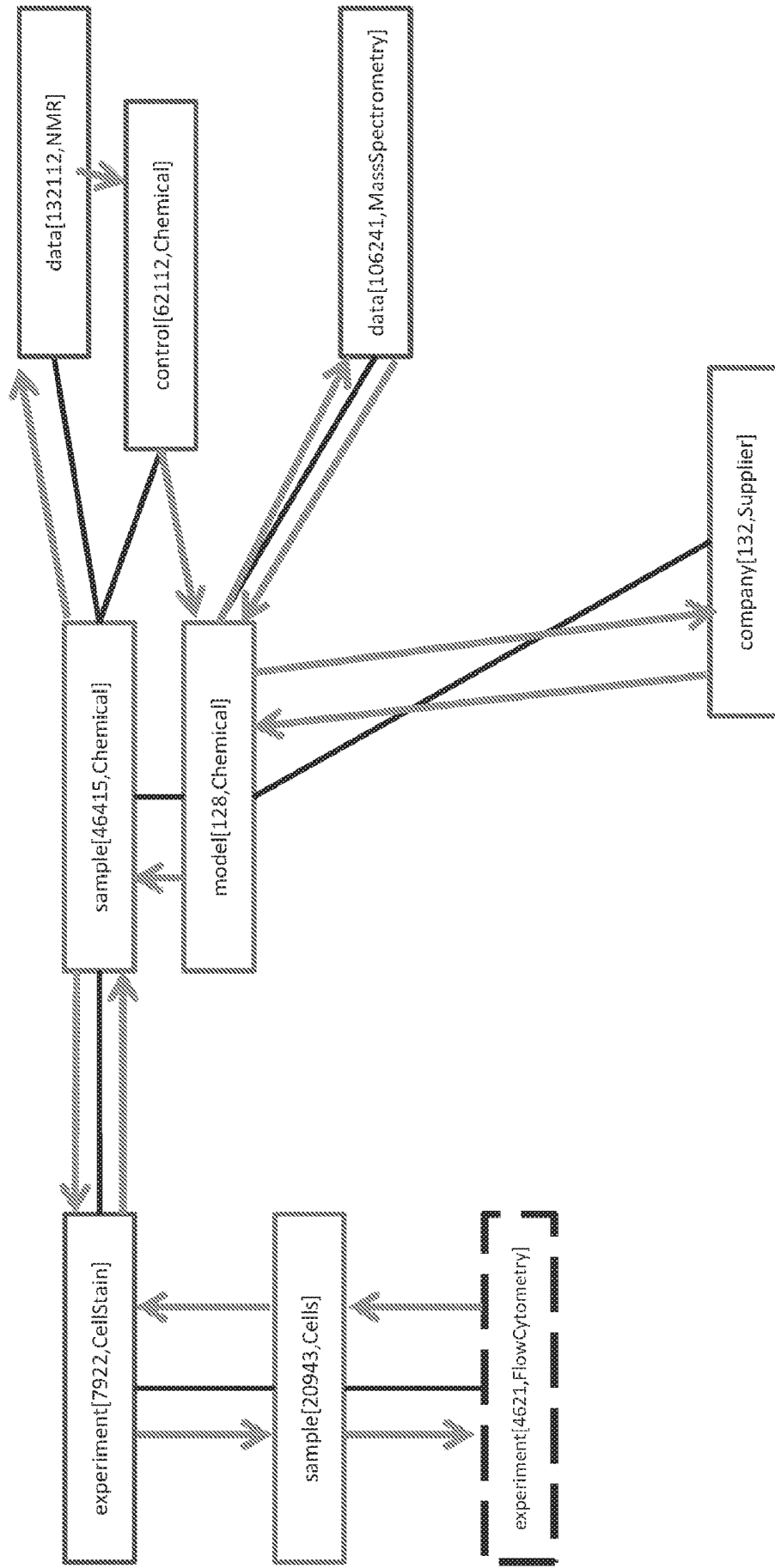


FIG. 16

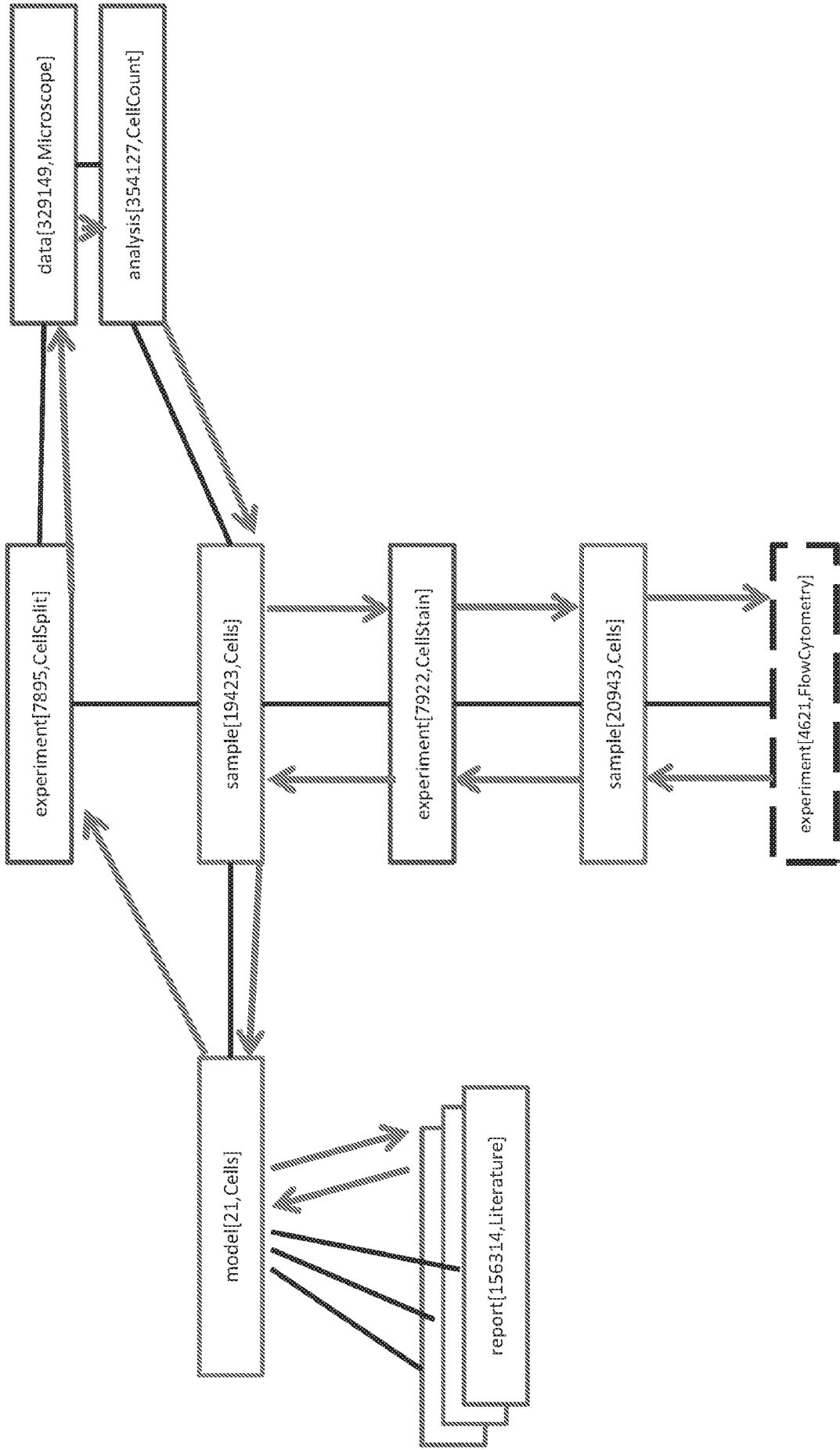


FIG. 17

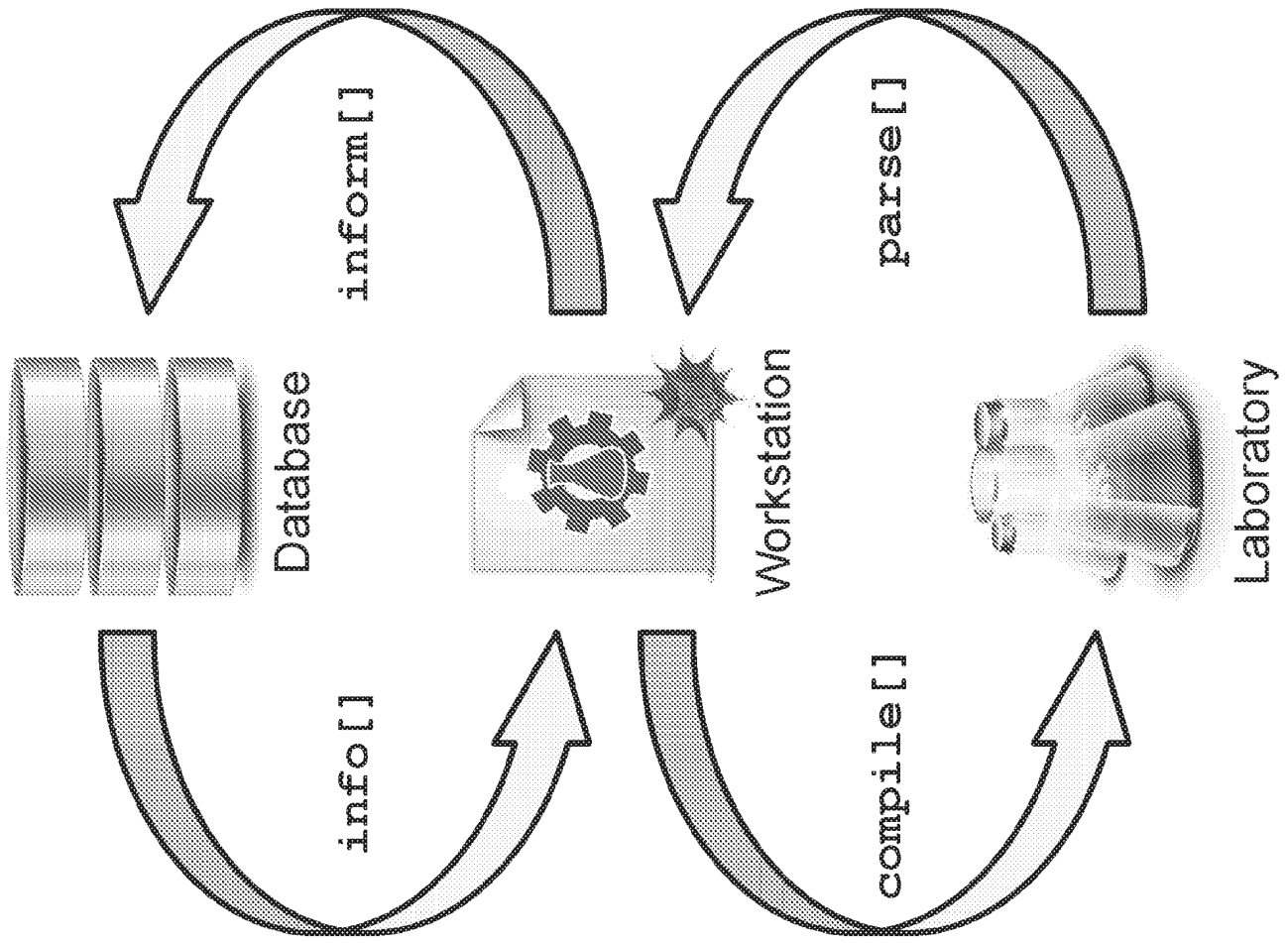


FIG. 18

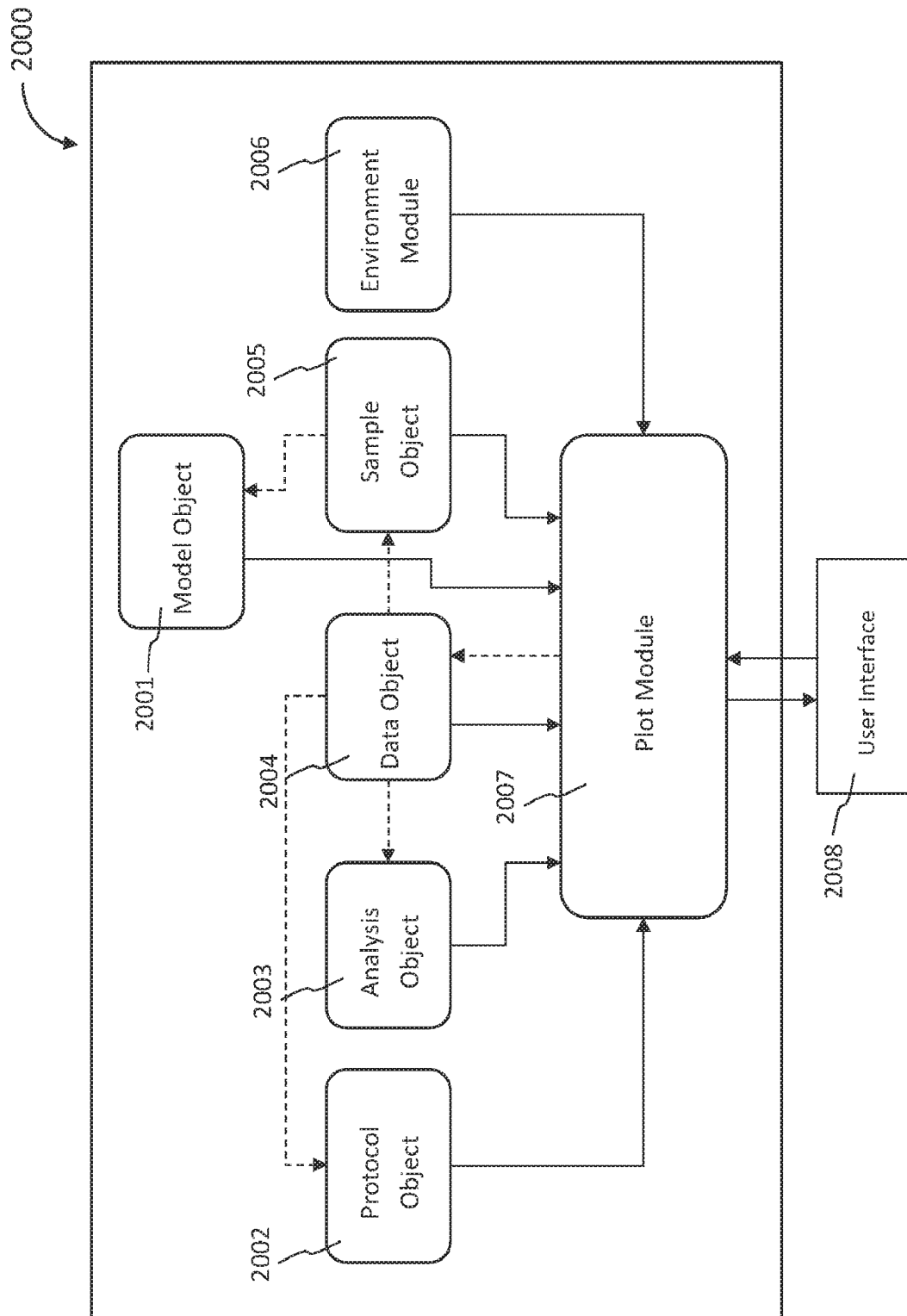
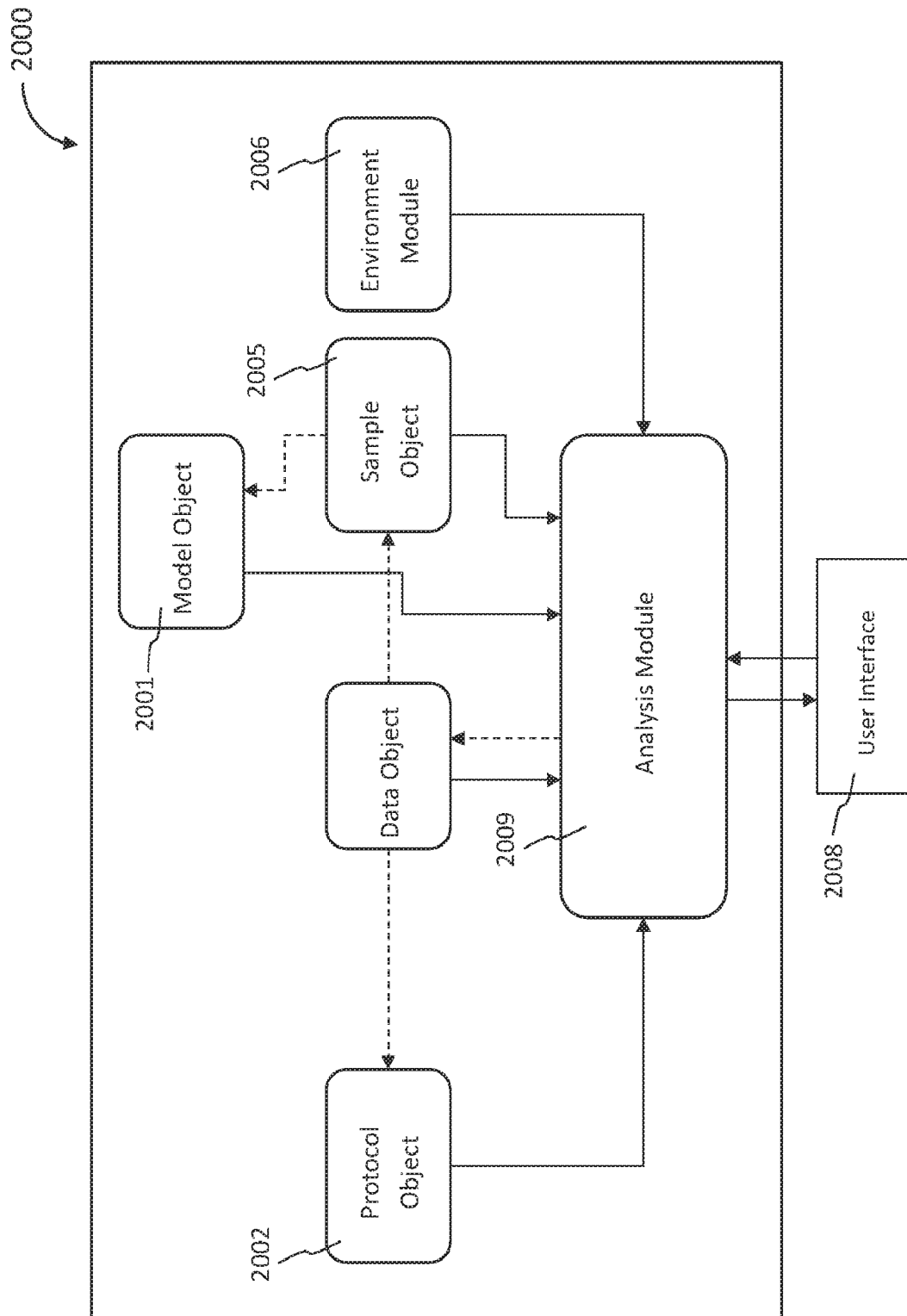


FIG. 20A

**FIG. 20B**

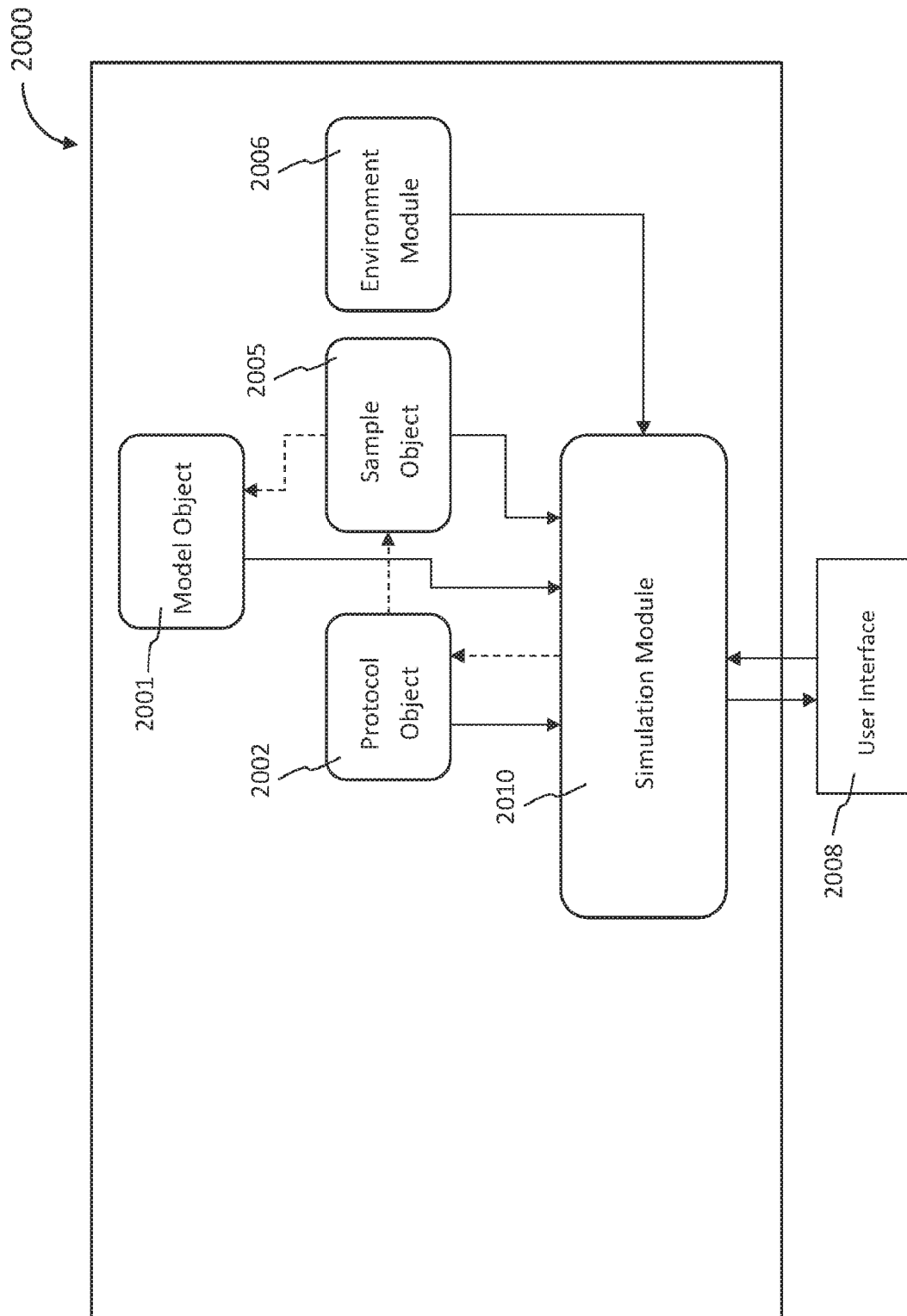


FIG. 20C

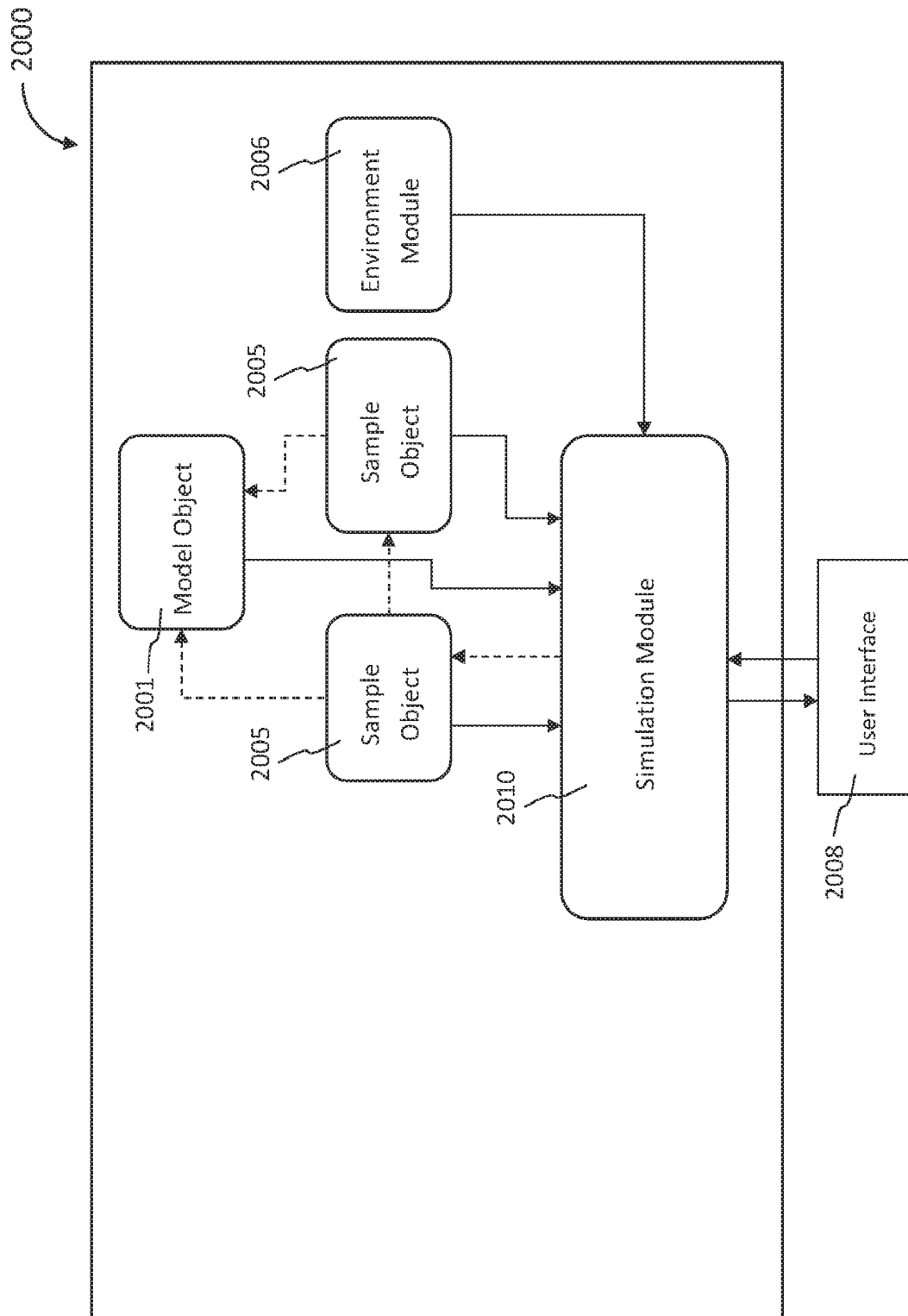


FIG. 20D

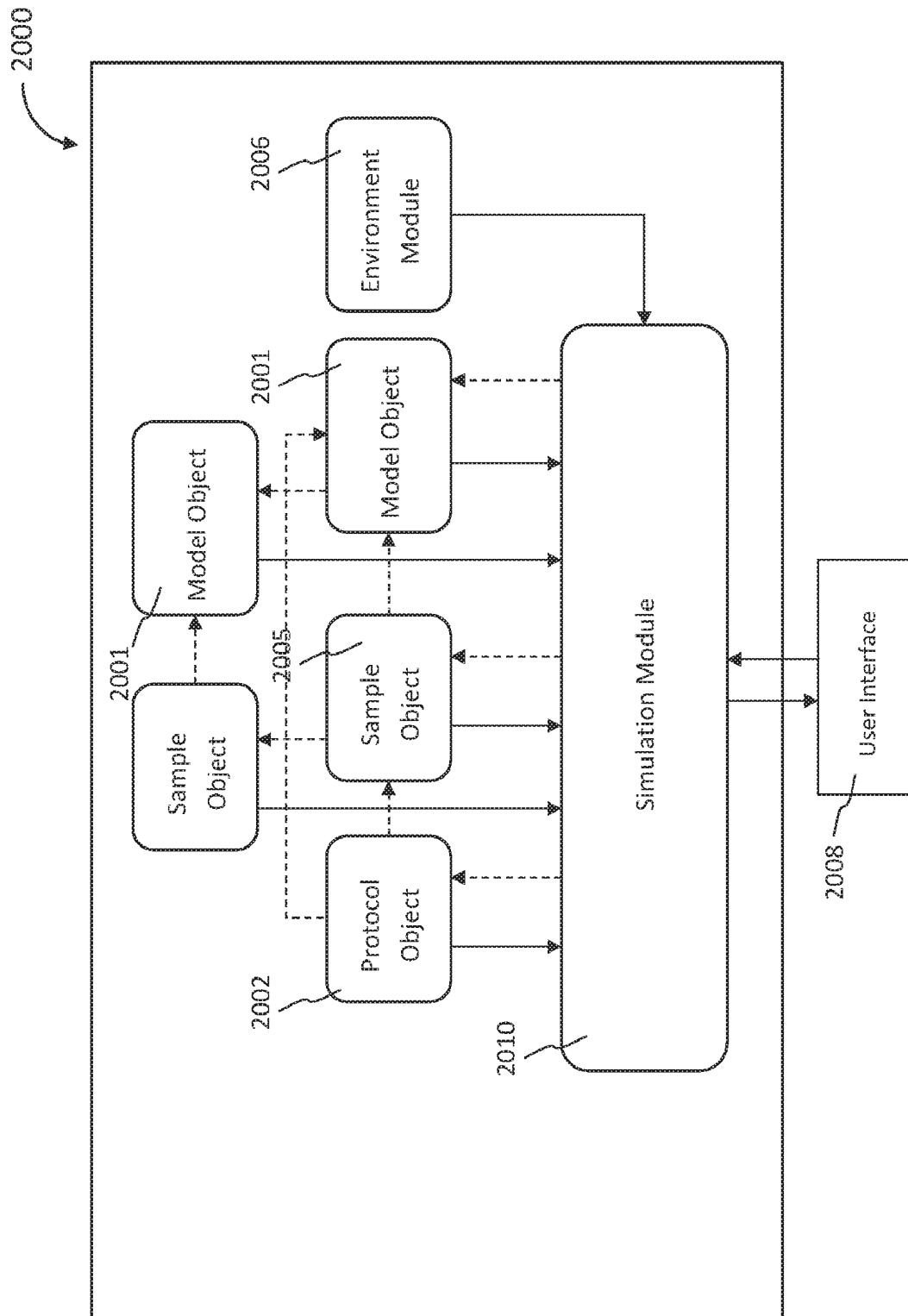


FIG. 20E

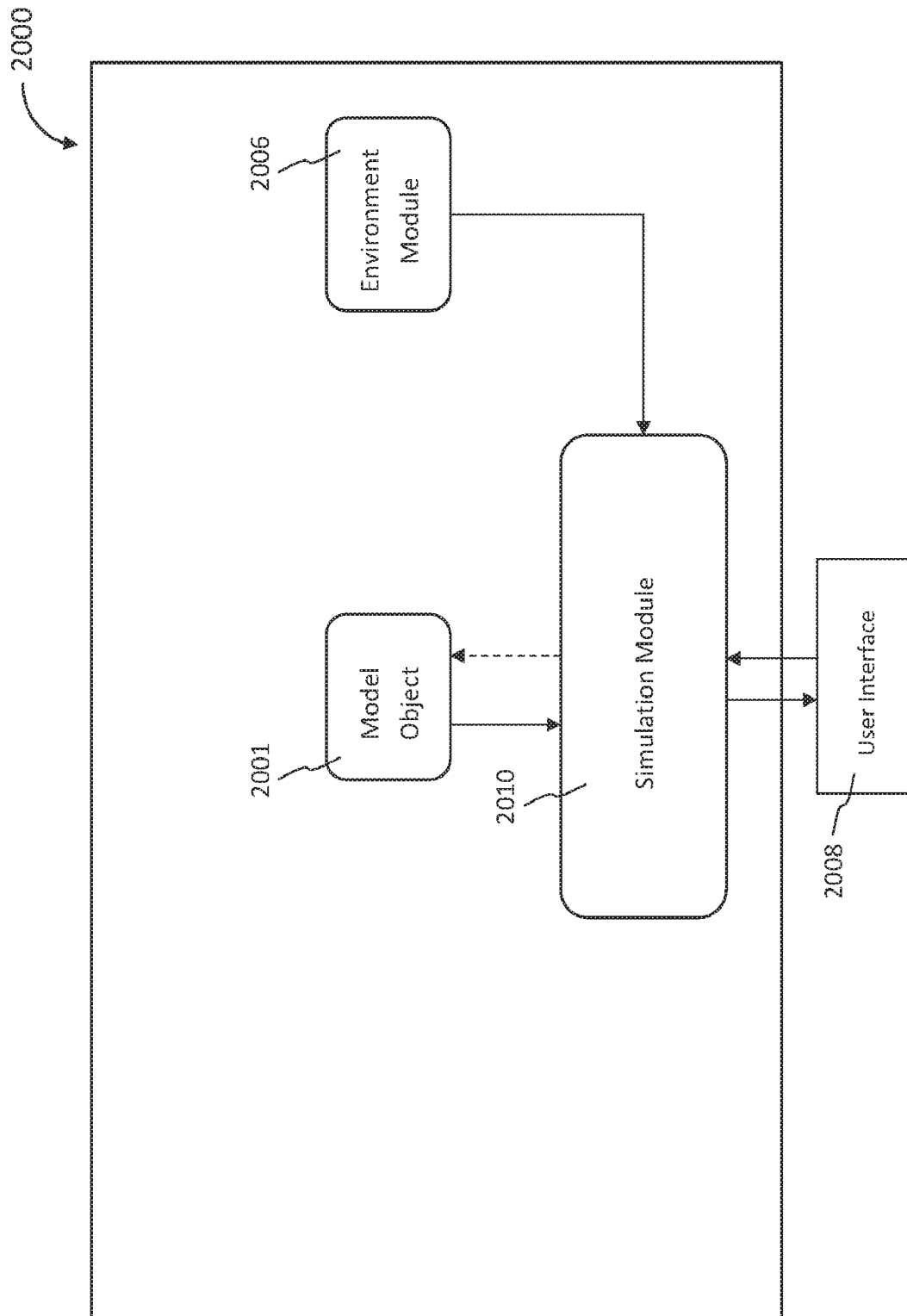


FIG. 20F

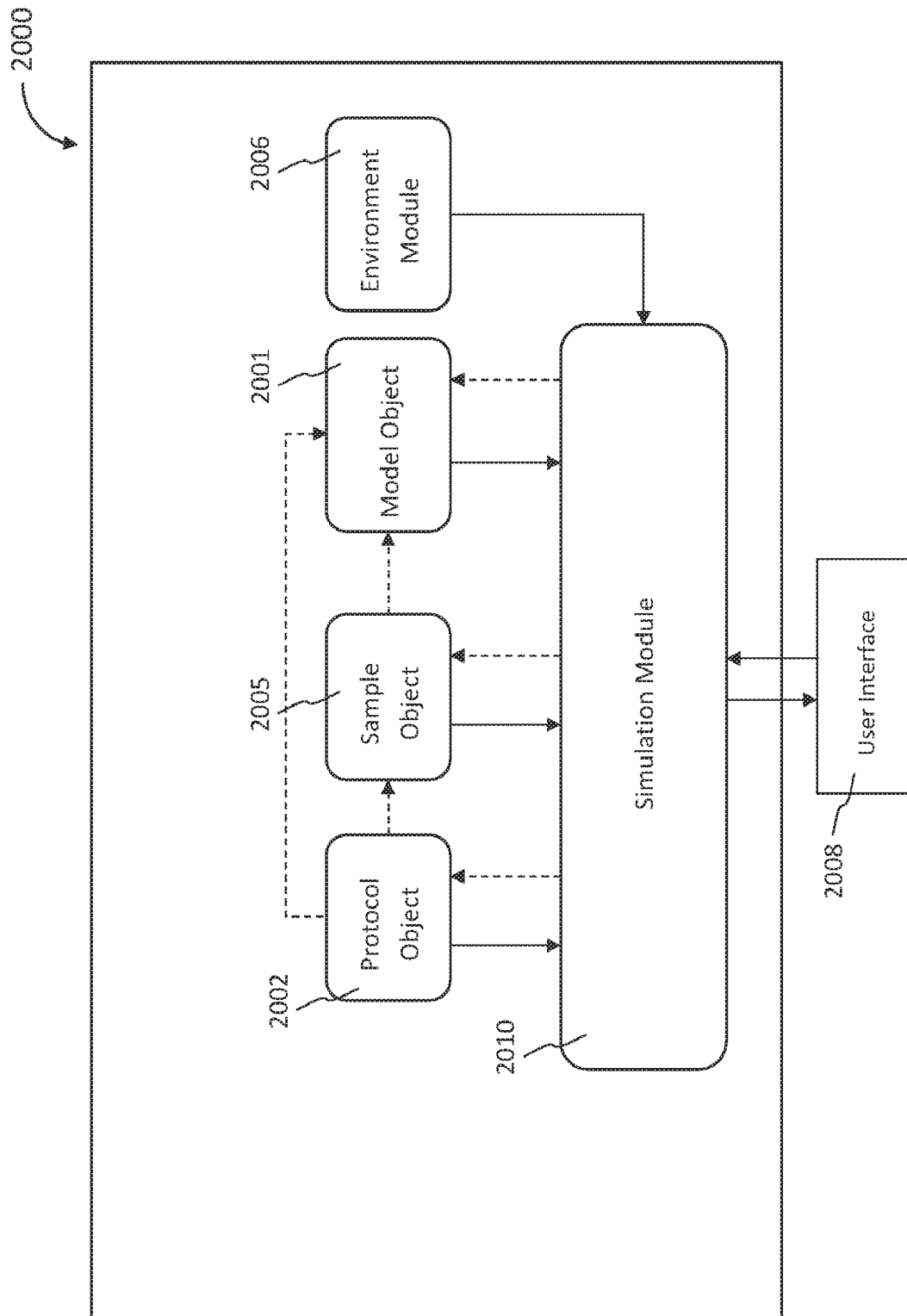


FIG. 20G