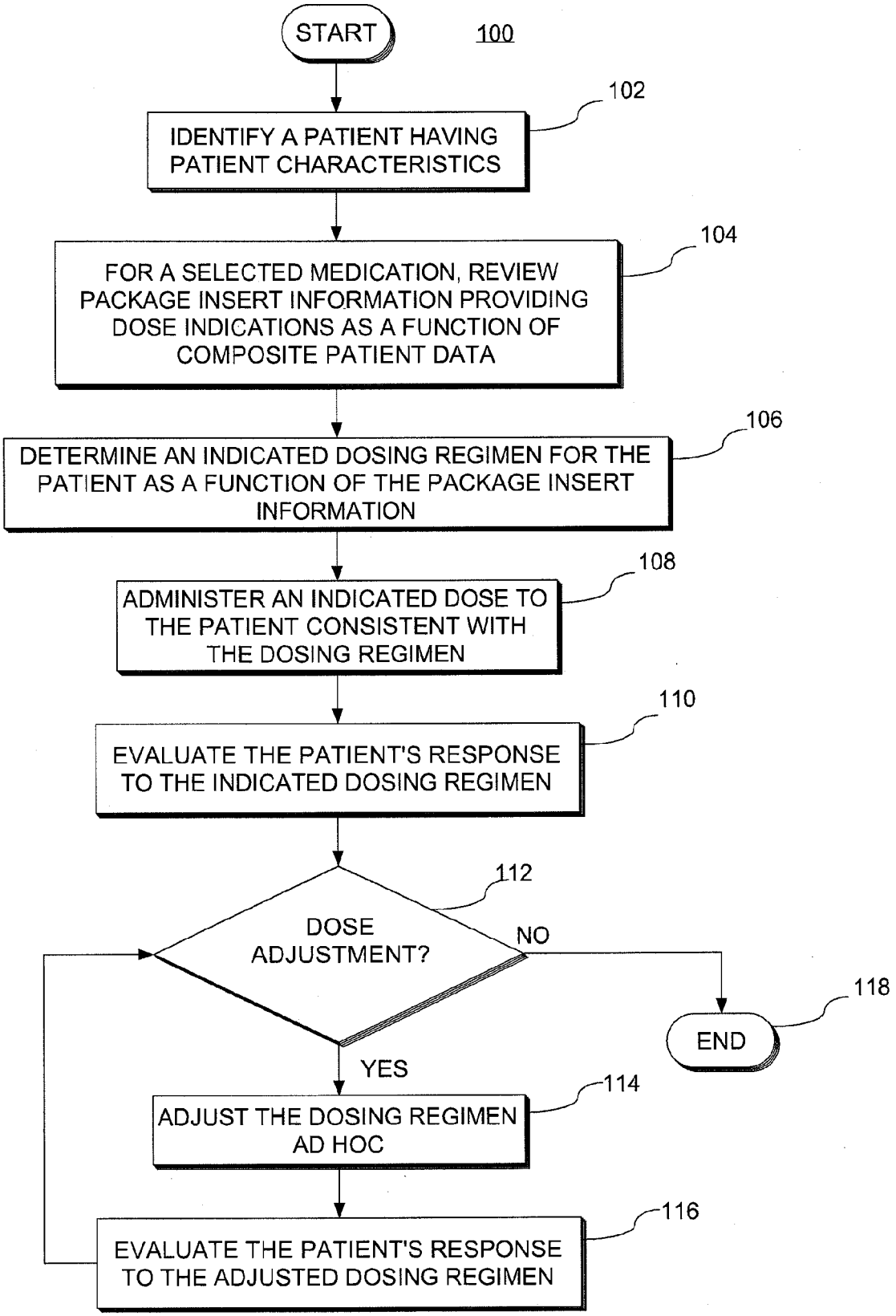


Figure 1
(PRIOR ART)

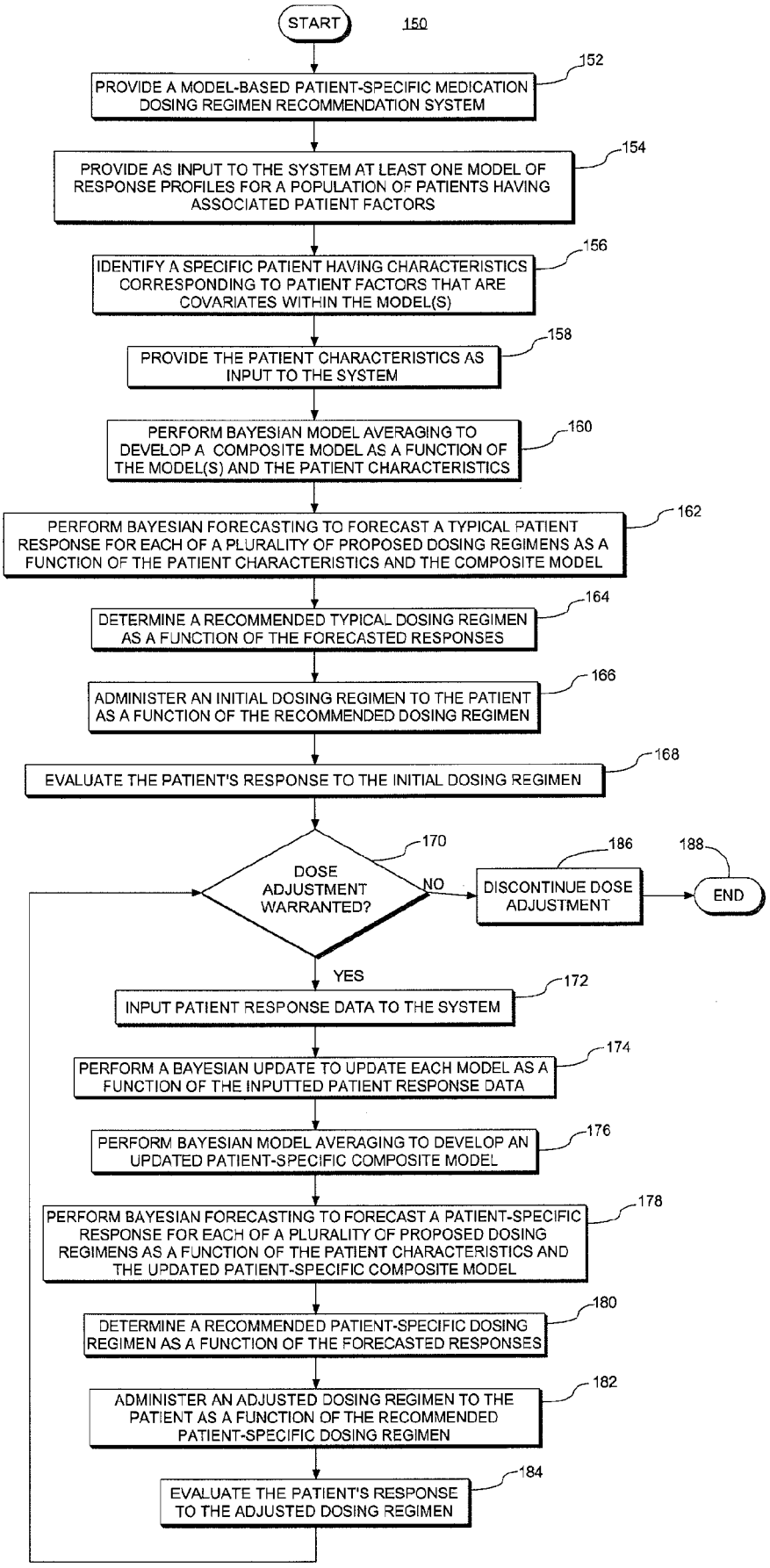

START
150
PROVIDE A MODEL-BASED PATIENT-SPECIFIC MEDICATION DOSING REGIMEN RECOMMENDATION SYSTEM
152
PROVIDE AS INPUT TO THE SYSTEM AT LEAST ONE MODEL OF RESPONSE PROFILES FOR A POPULATION OF PATIENTS HAVING ASSOCIATED PATIENT FACTORS
154
IDENTIFY A SPECIFIC PATIENT HAVING CHARACTERISTICS CORRESPONDING TO PATIENT FACTORS THAT ARE COVARIATES WITHIN THE MODEL(S)
156
PROVIDE THE PATIENT CHARACTERISTICS AS INPUT TO THE SYSTEM
158
PERFORM BAYESIAN MODEL AVERAGING TO DEVELOP A COMPOSITE MODEL AS A FUNCTION OF THE MODEL(S) AND THE PATIENT CHARACTERISTICS
160
PERFORM BAYESIAN FORECASTING TO FORECAST A TYPICAL PATIENT RESPONSE FOR EACH OF A PLURALITY OF PROPOSED DOSING REGIMENS AS A FUNCTION OF THE PATIENT CHARACTERISTICS AND THE COMPOSITE MODEL
162
DETERMINE A RECOMMENDED TYPICAL DOSING REGIMEN AS A FUNCTION OF THE FORECASTED RESPONSES
164
ADMINISTER AN INITIAL DOSING REGIMEN TO THE PATIENT AS A FUNCTION OF THE RECOMMENDED DOSING REGIMEN
166
EVALUATE THE PATIENT'S RESPONSE TO THE INITIAL DOSING REGIMEN
168
DOSE ADJUSTMENT WARRANTED?
170
NO
DISCONTINUE DOSE ADJUSTMENT
186
END
188
YES
INPUT PATIENT RESPONSE DATA TO THE SYSTEM
172
PERFORM A BAYESIAN UPDATE TO UPDATE EACH MODEL AS A FUNCTION OF THE INPUTTED PATIENT RESPONSE DATA
174
PERFORM BAYESIAN MODEL AVERAGING TO DEVELOP AN UPDATED PATIENT-SPECIFIC COMPOSITE MODEL
176
PERFORM BAYESIAN FORECASTING TO FORECAST A PATIENT-SPECIFIC RESPONSE FOR EACH OF A PLURALITY OF PROPOSED DOSING REGIMENS AS A FUNCTION OF THE PATIENT CHARACTERISTICS AND THE UPDATED PATIENT-SPECIFIC COMPOSITE MODEL
178
DETERMINE A RECOMMENDED PATIENT-SPECIFIC DOSING REGIMEN AS A FUNCTION OF THE FORECASTED RESPONSES
180
ADMINISTER AN ADJUSTED DOSING REGIMEN TO THE PATIENT AS A FUNCTION OF THE RECOMMENDED PATIENT-SPECIFIC DOSING REGIMEN
182
EVALUATE THE PATIENT'S RESPONSE TO THE ADJUSTED DOSING REGIMEN
184

Figure 2

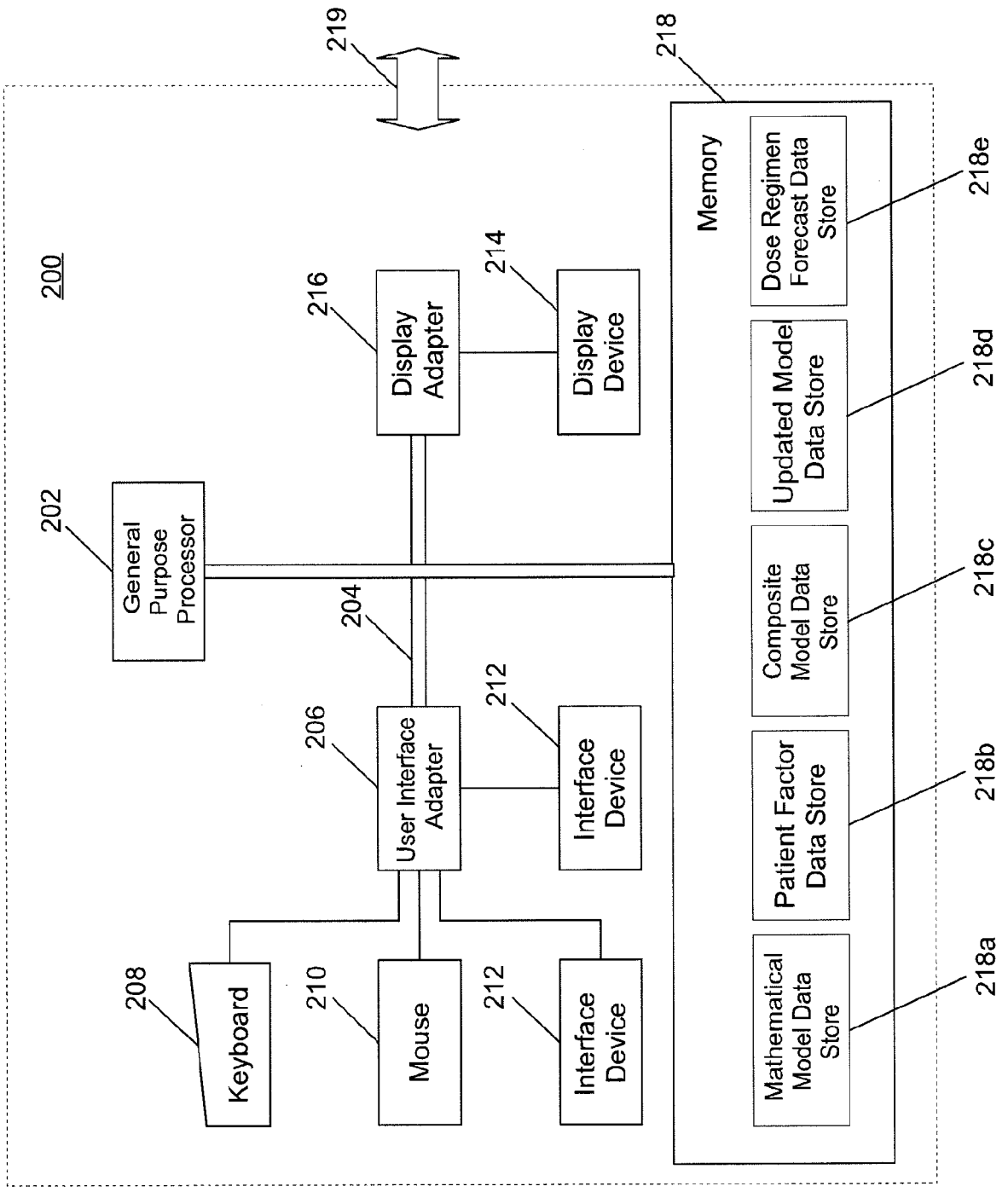

200
219
218
Memory
Dose Regimen Forecast Data Store
218e
Updated Model Data Store
218d
Composite Model Data Store
218c
Patient Factor Data Store
218b
Mathematical Model Data Store
218a
216
Display Adapter
214
Display Device
202
General Purpose Processor
204
206
User Interface Adapter
212
Interface Device
208
Keyboard
210
Mouse
212
Interface Device

Figure 3

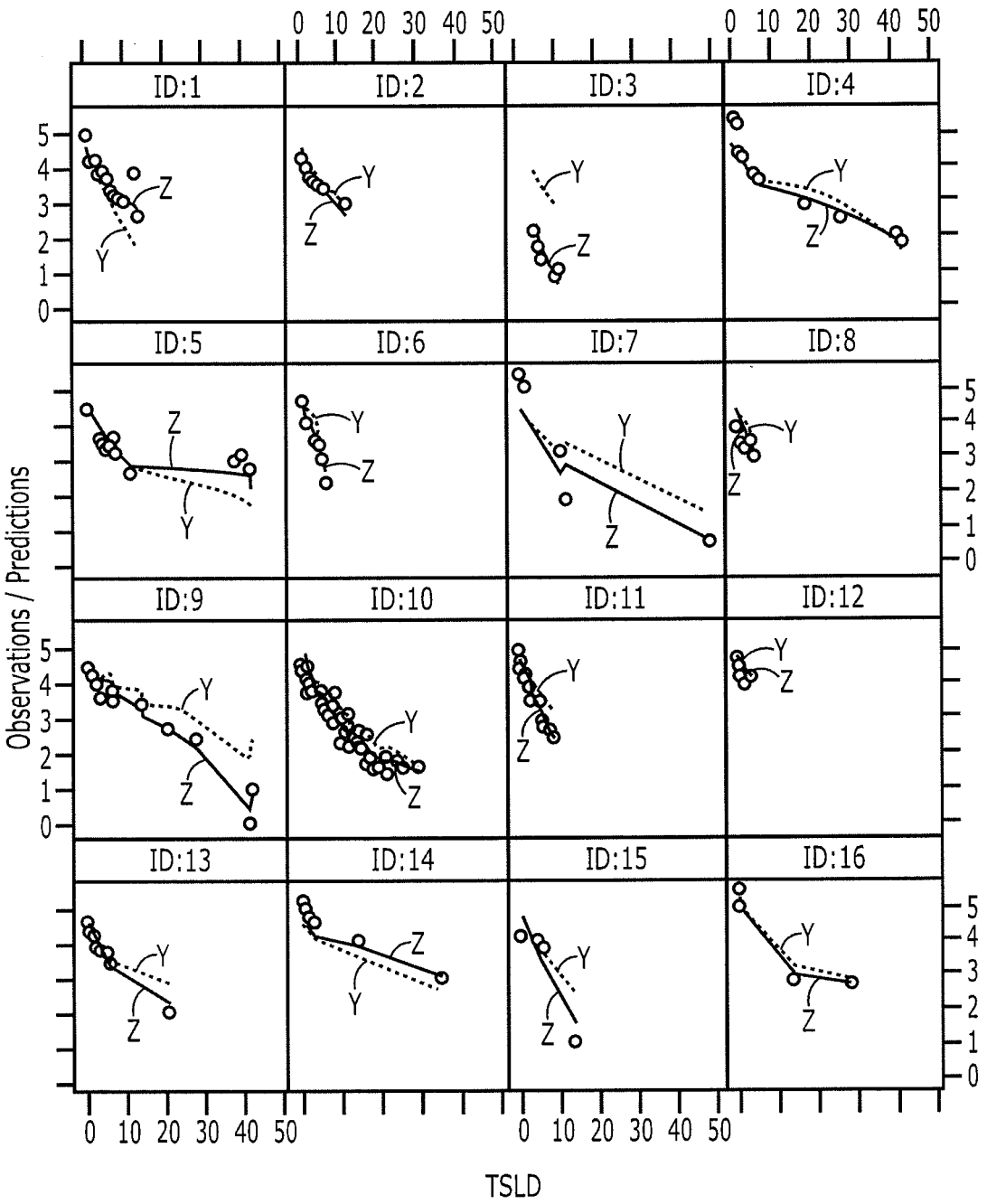

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Observations / Predictions
TSLD

Figure 4

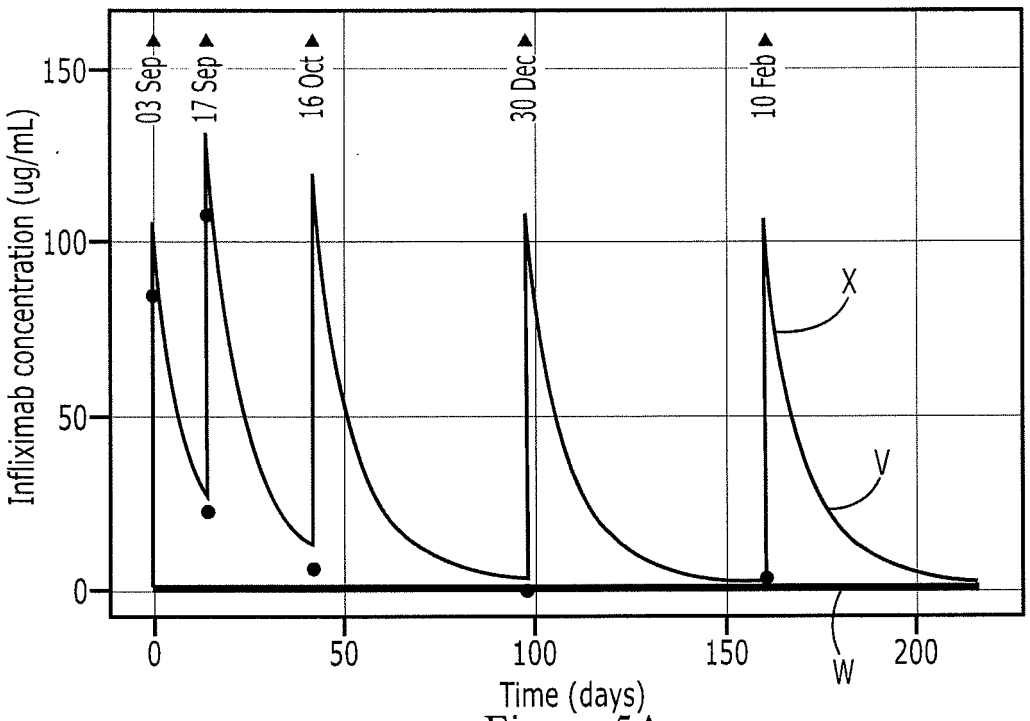


Figure 5A

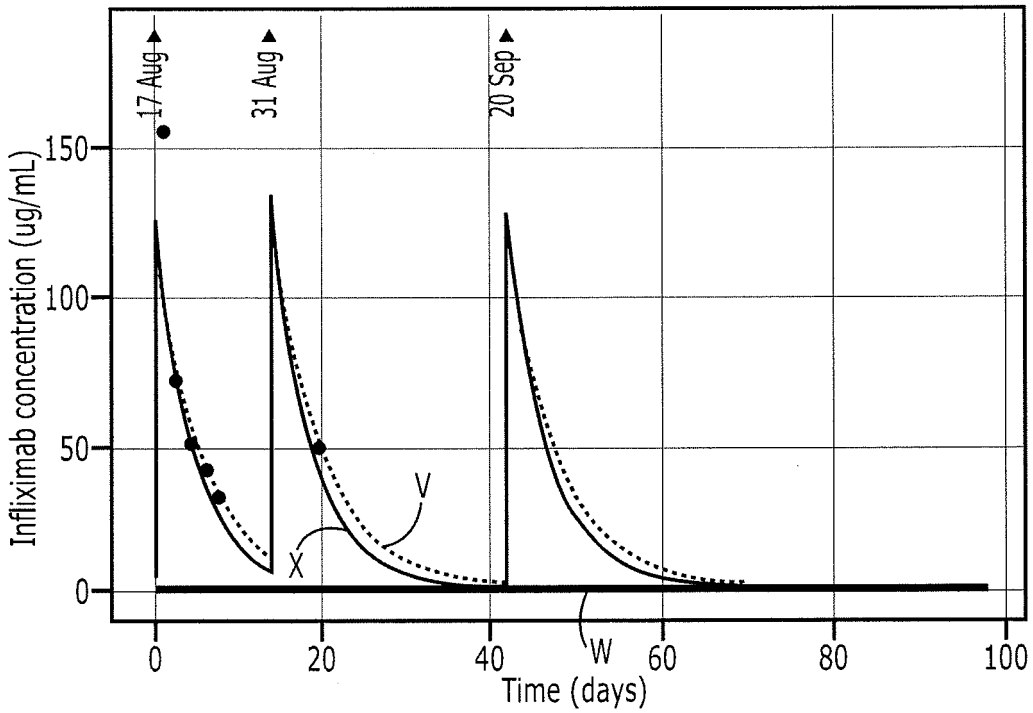


Figure 5B

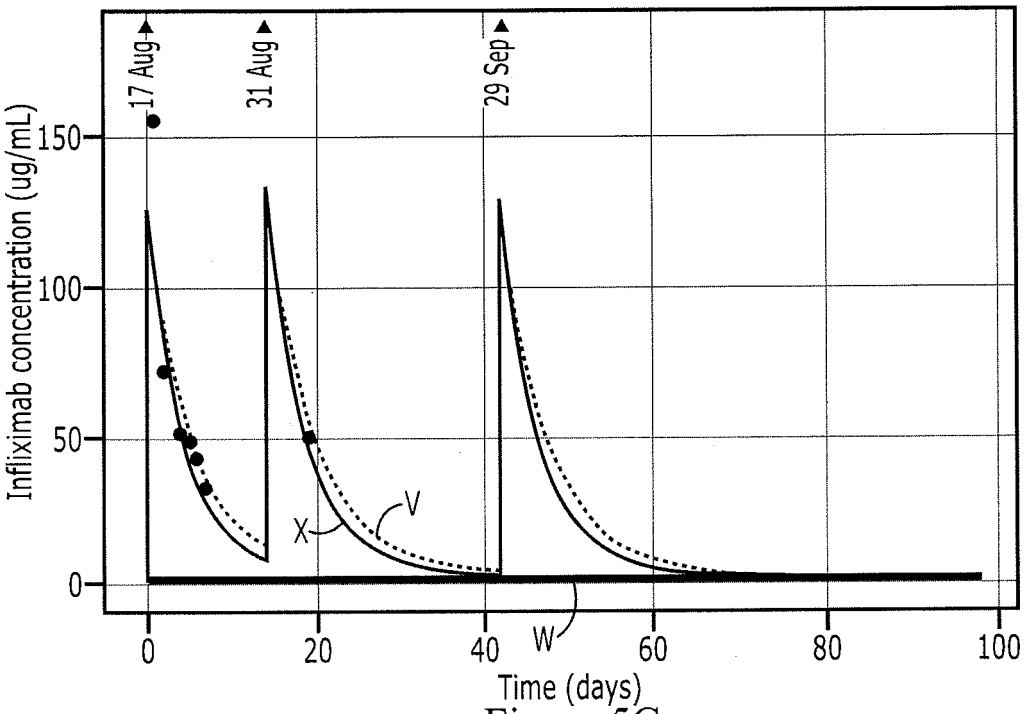


Figure 5C

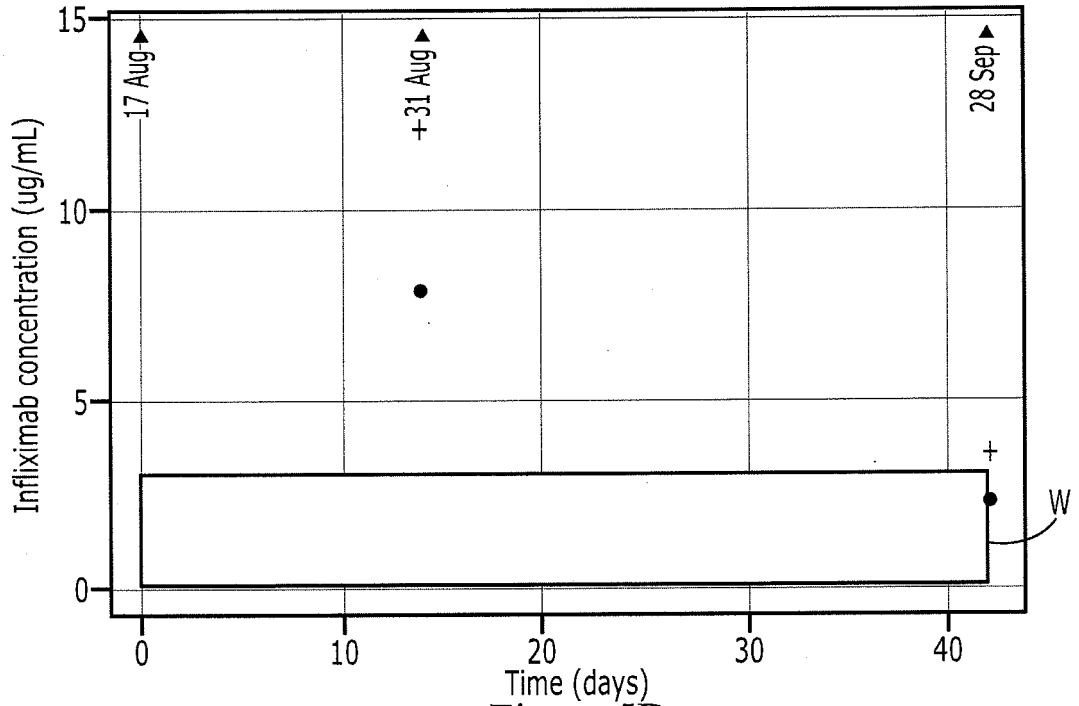


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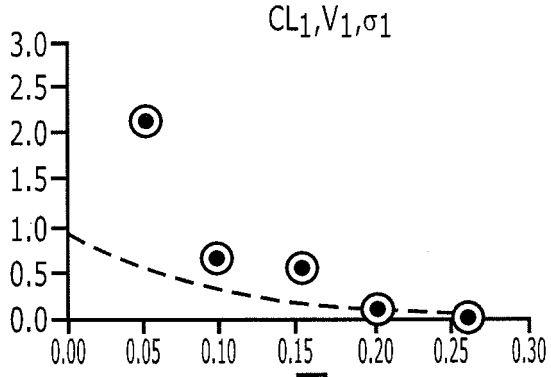


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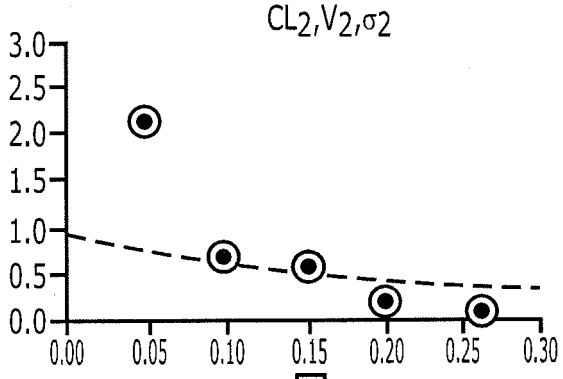


Figure 6B

-0.911

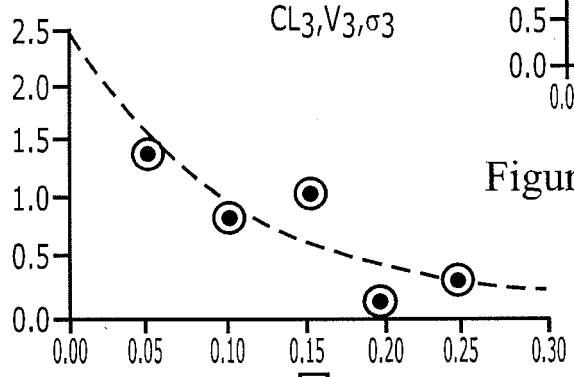


Figure 6C

0.670

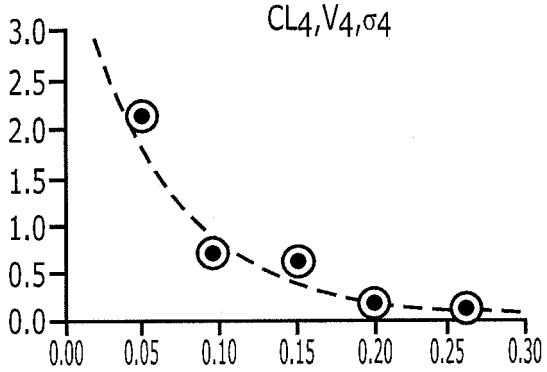


Figure 6D

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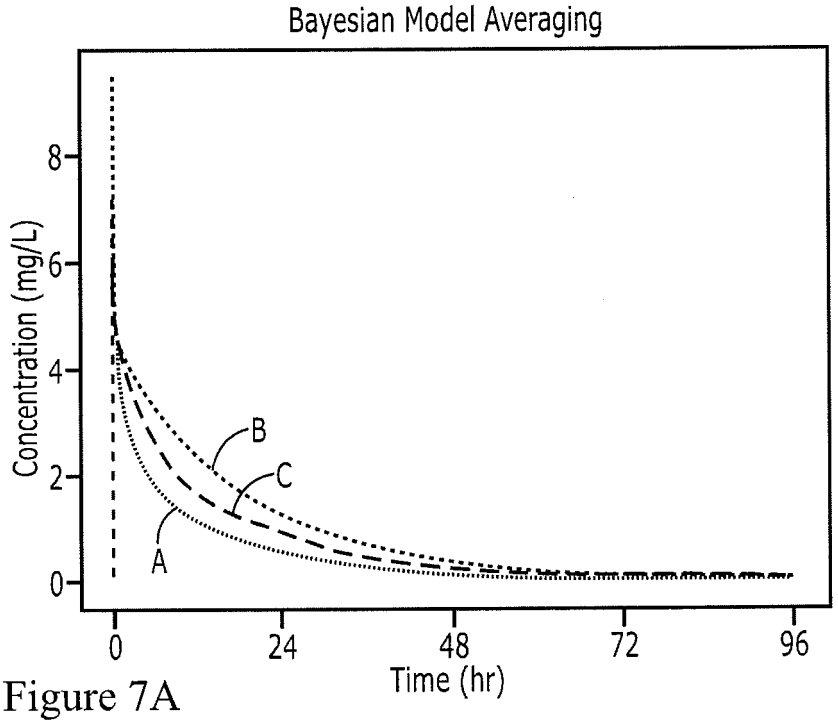


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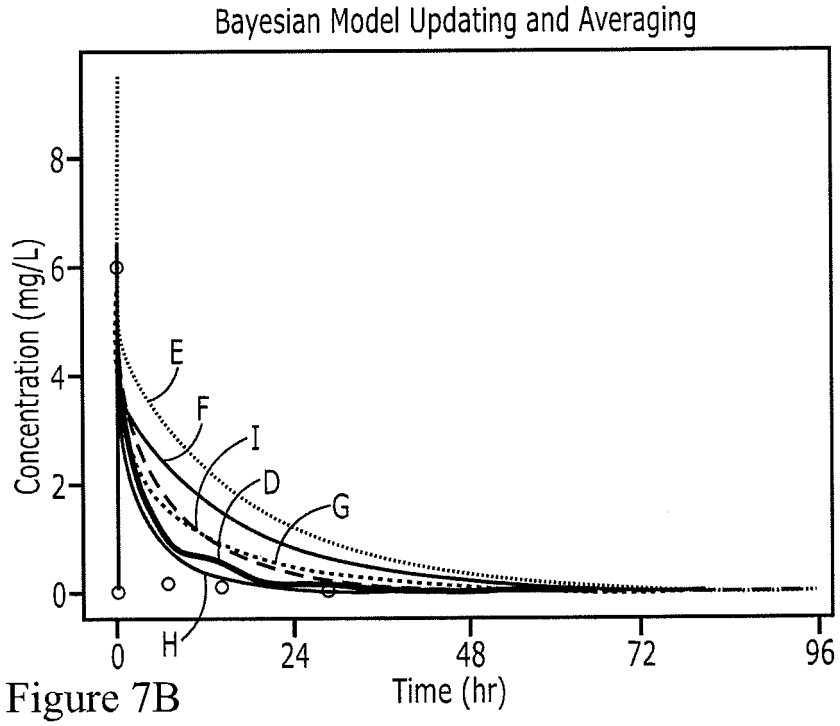


Figure 7B

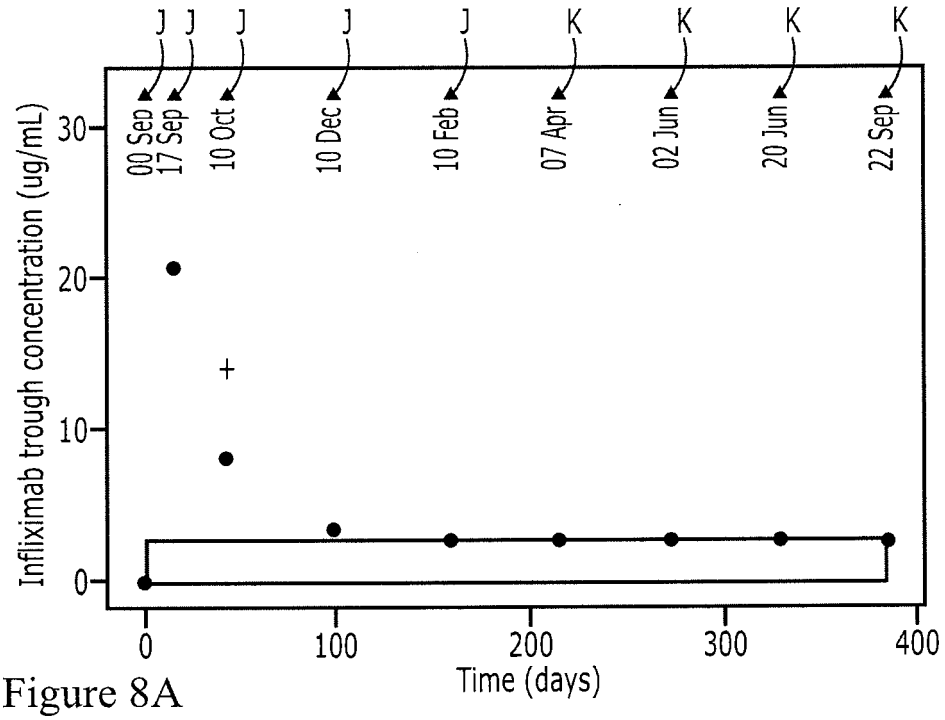


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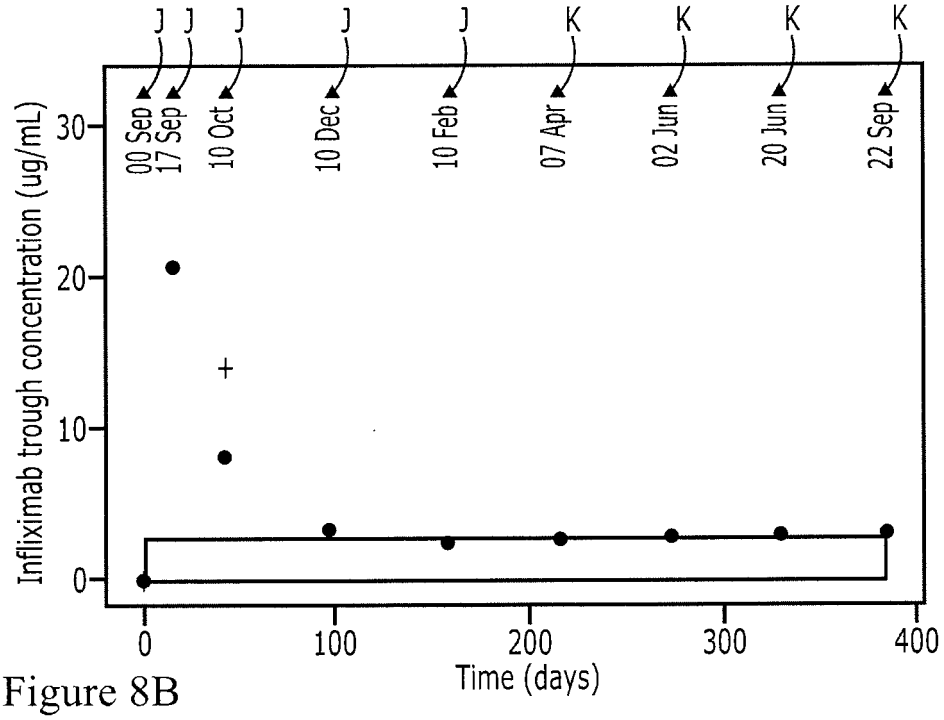


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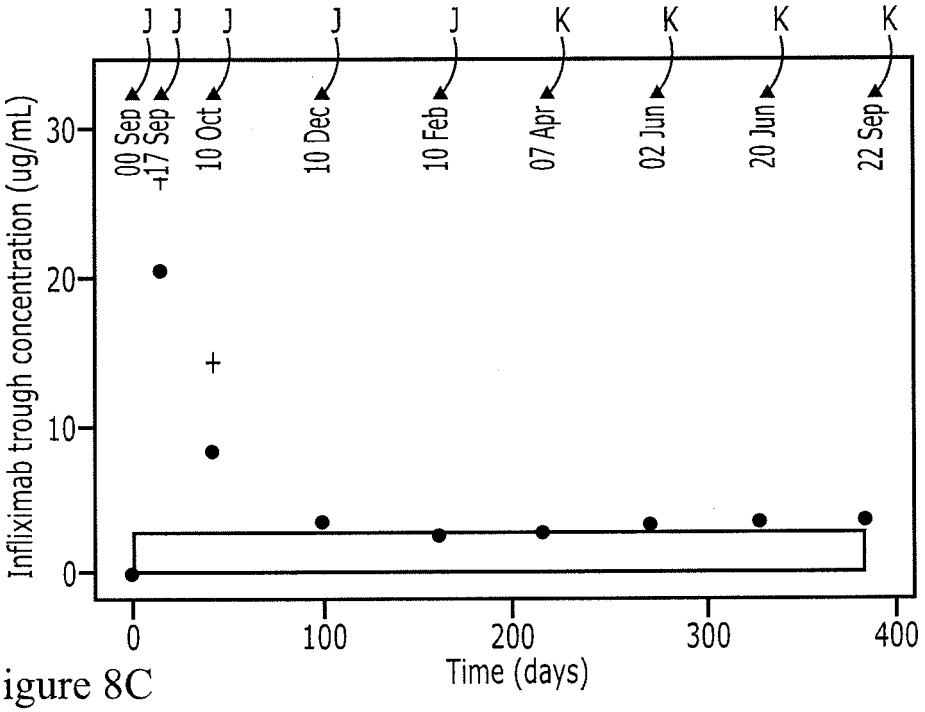


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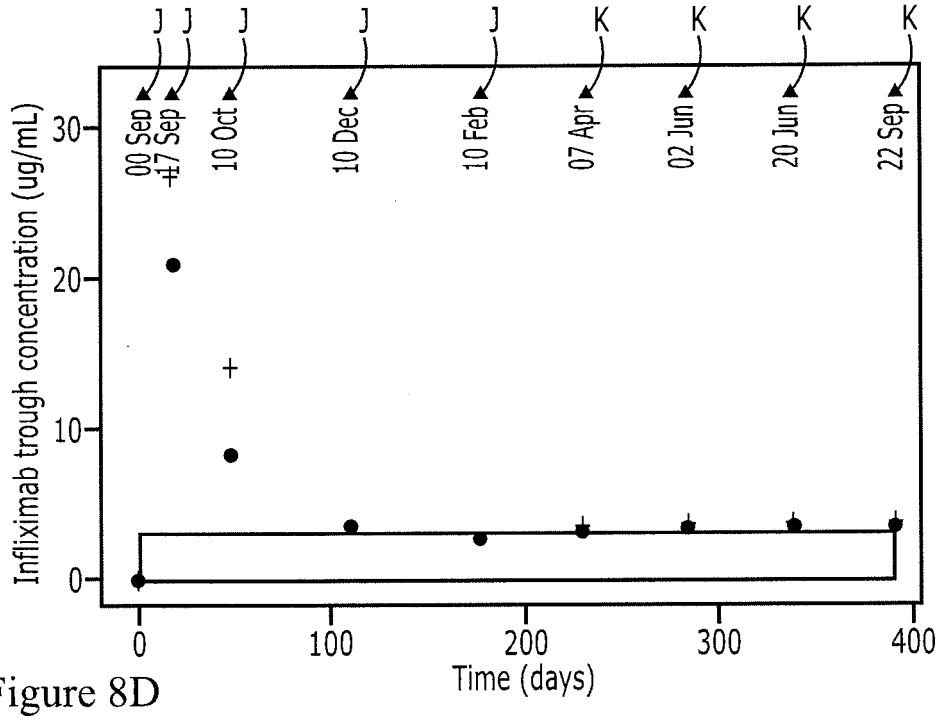


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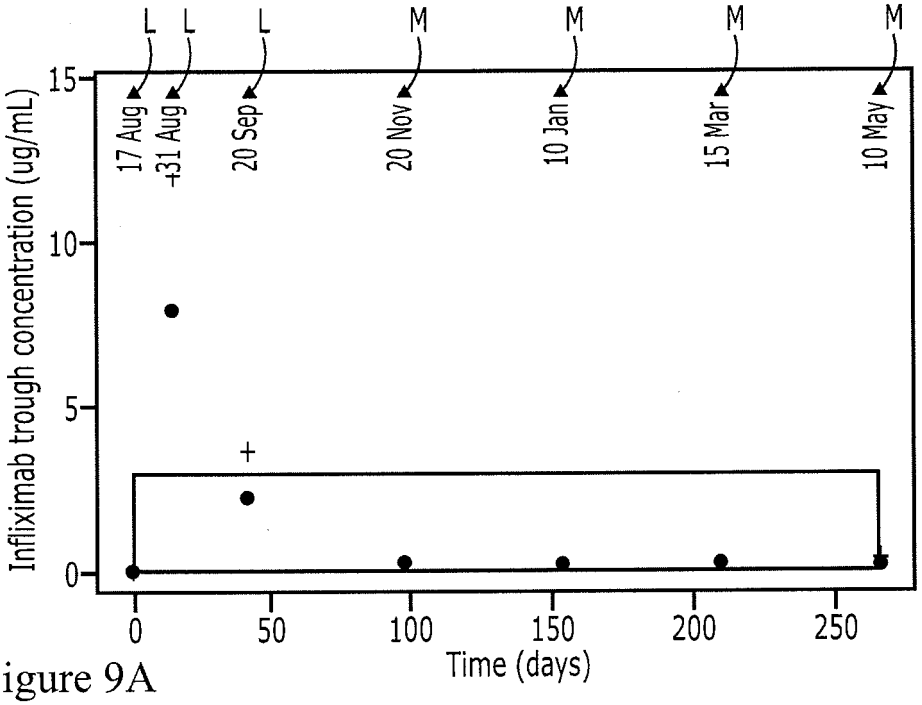


Figure 9A

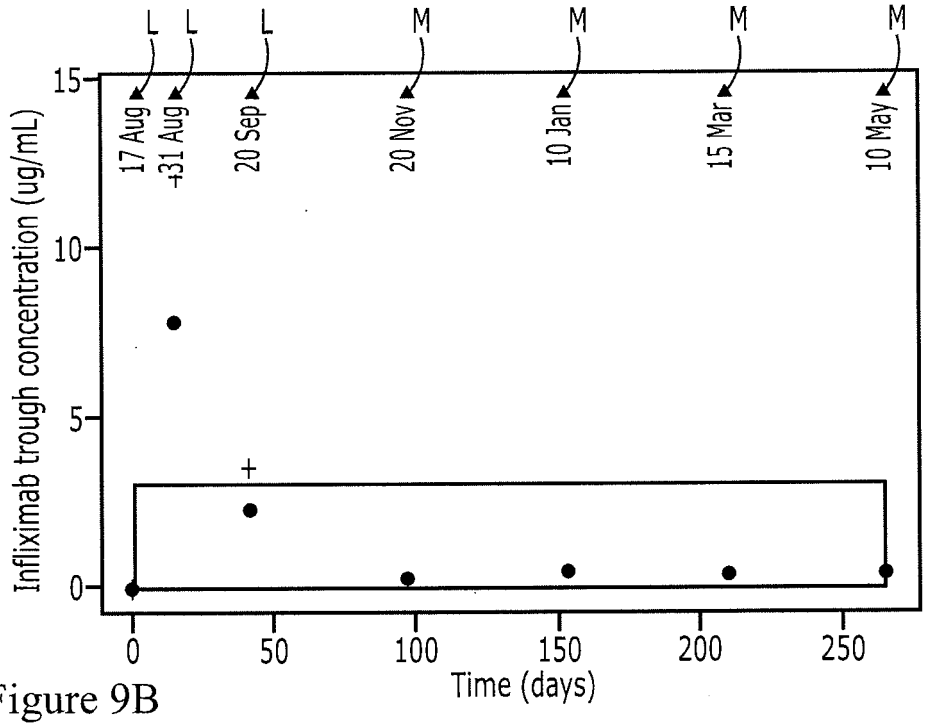


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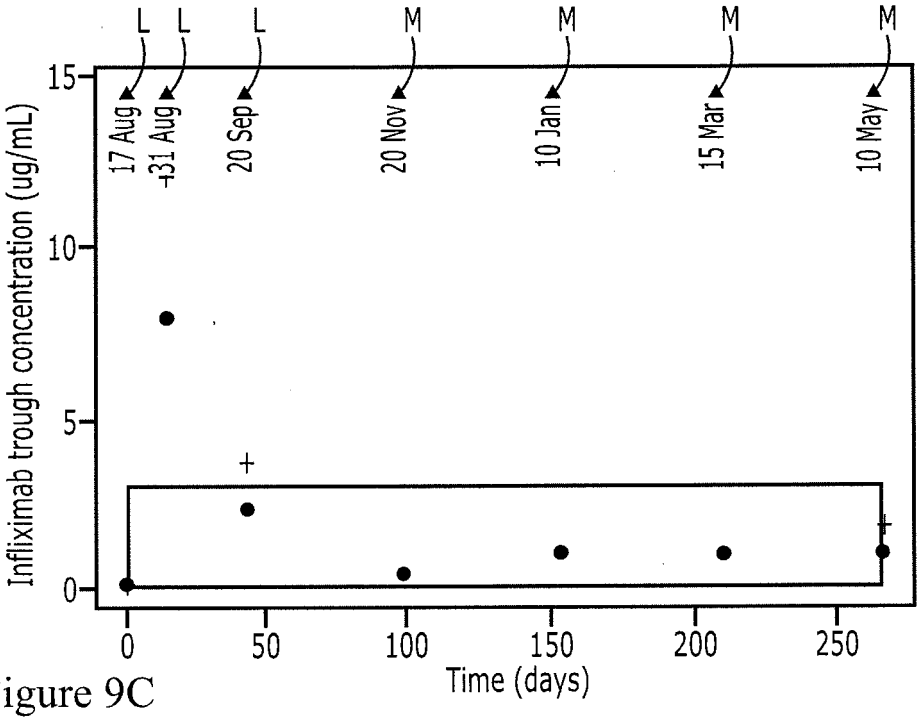


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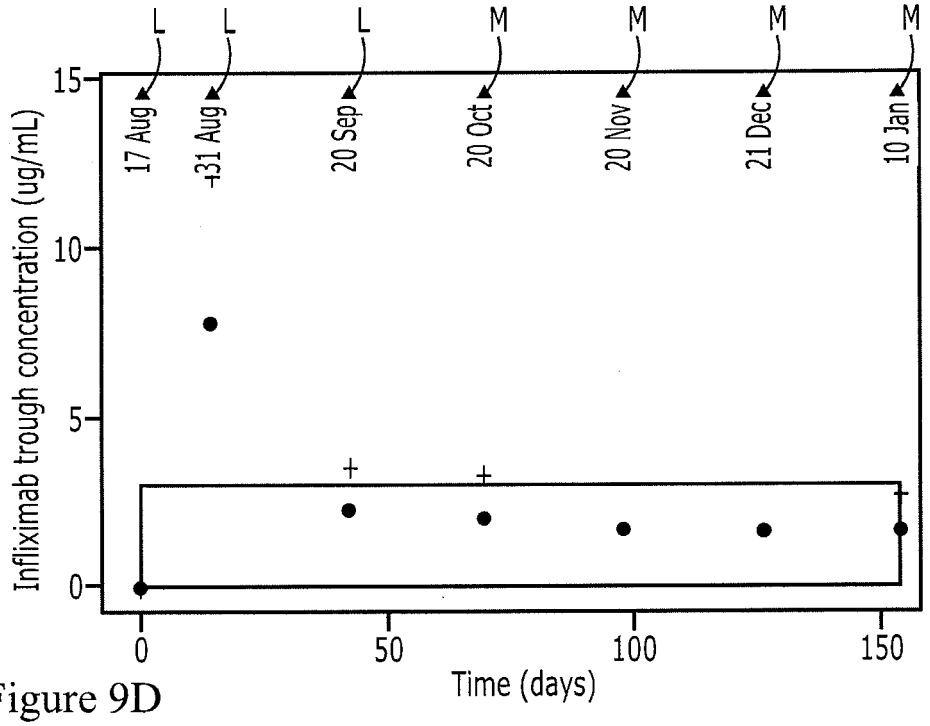


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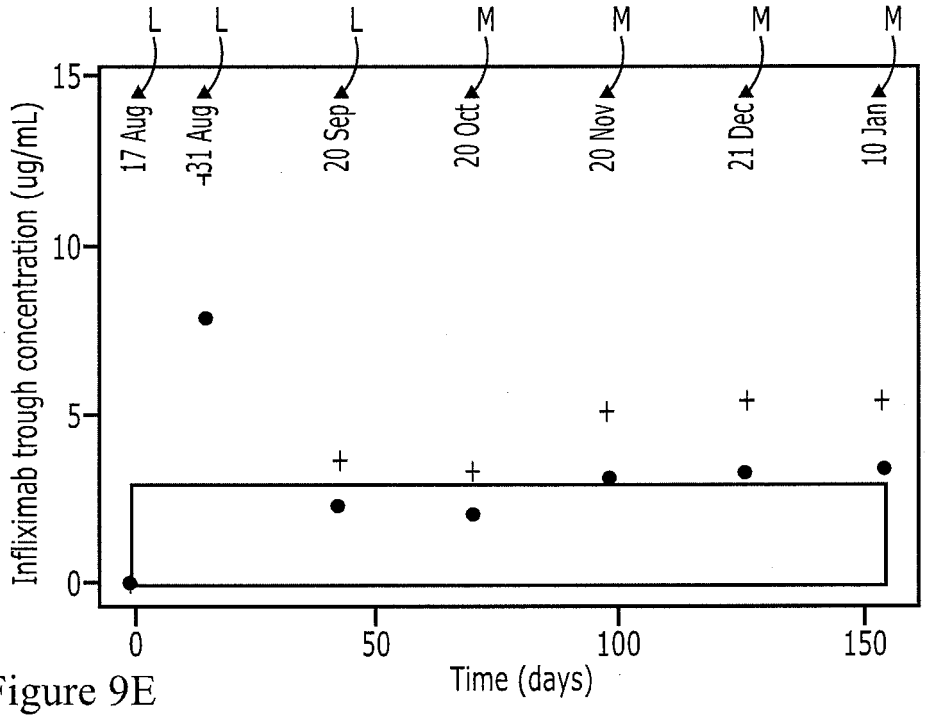

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50
100
150
Time (days)

Figure 9E

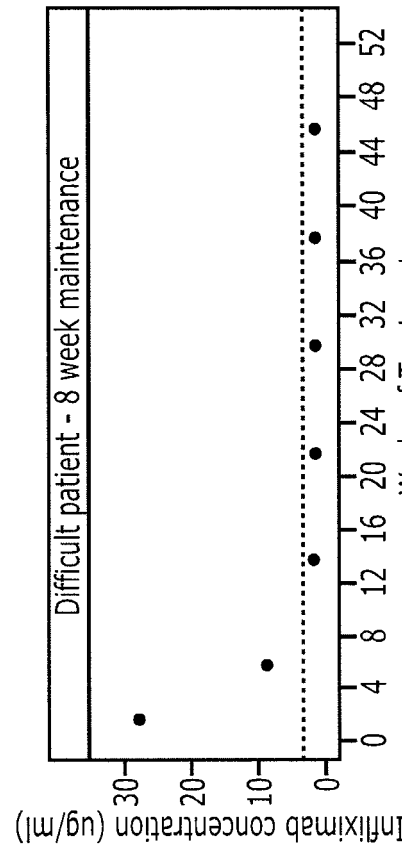


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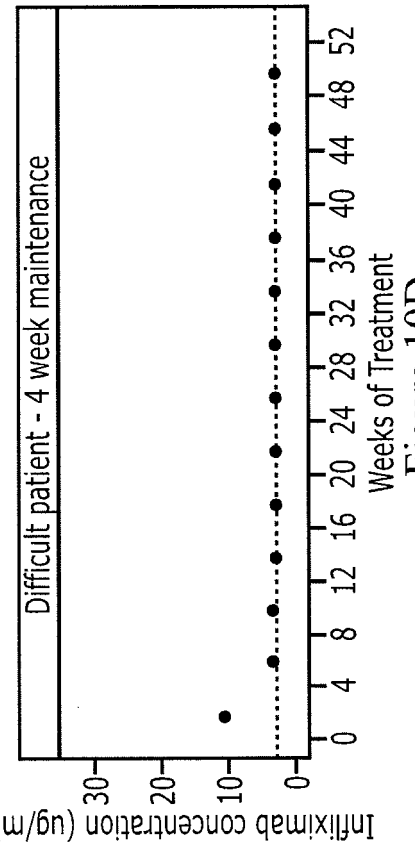


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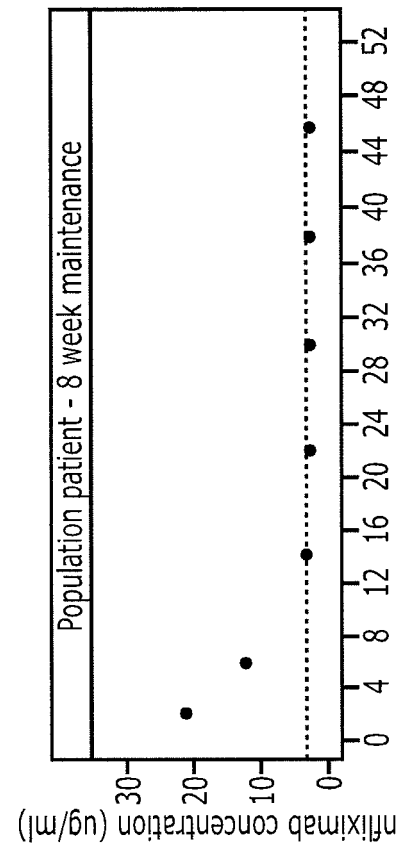


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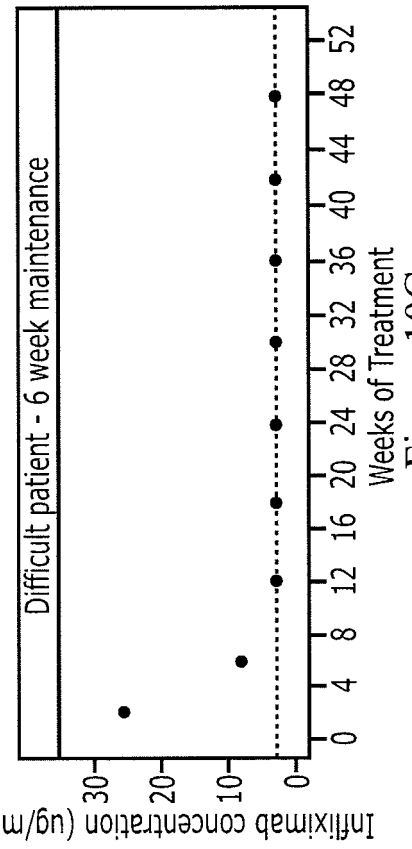


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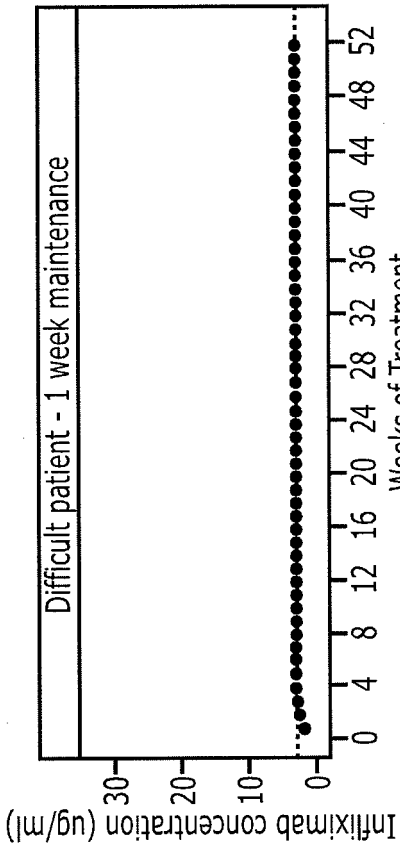


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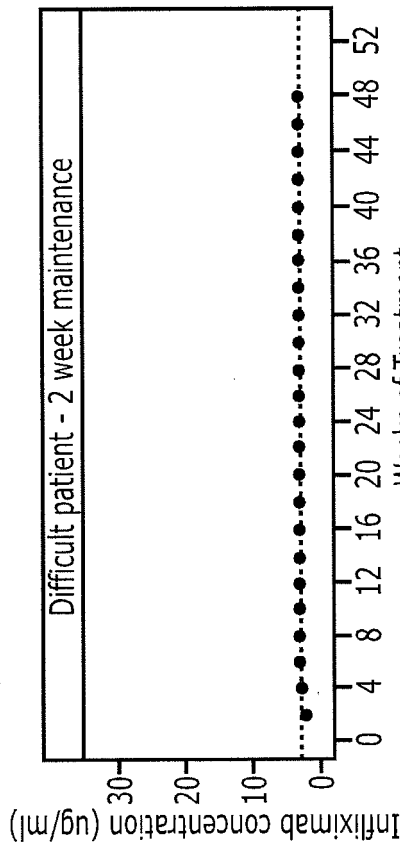


Figure 10E

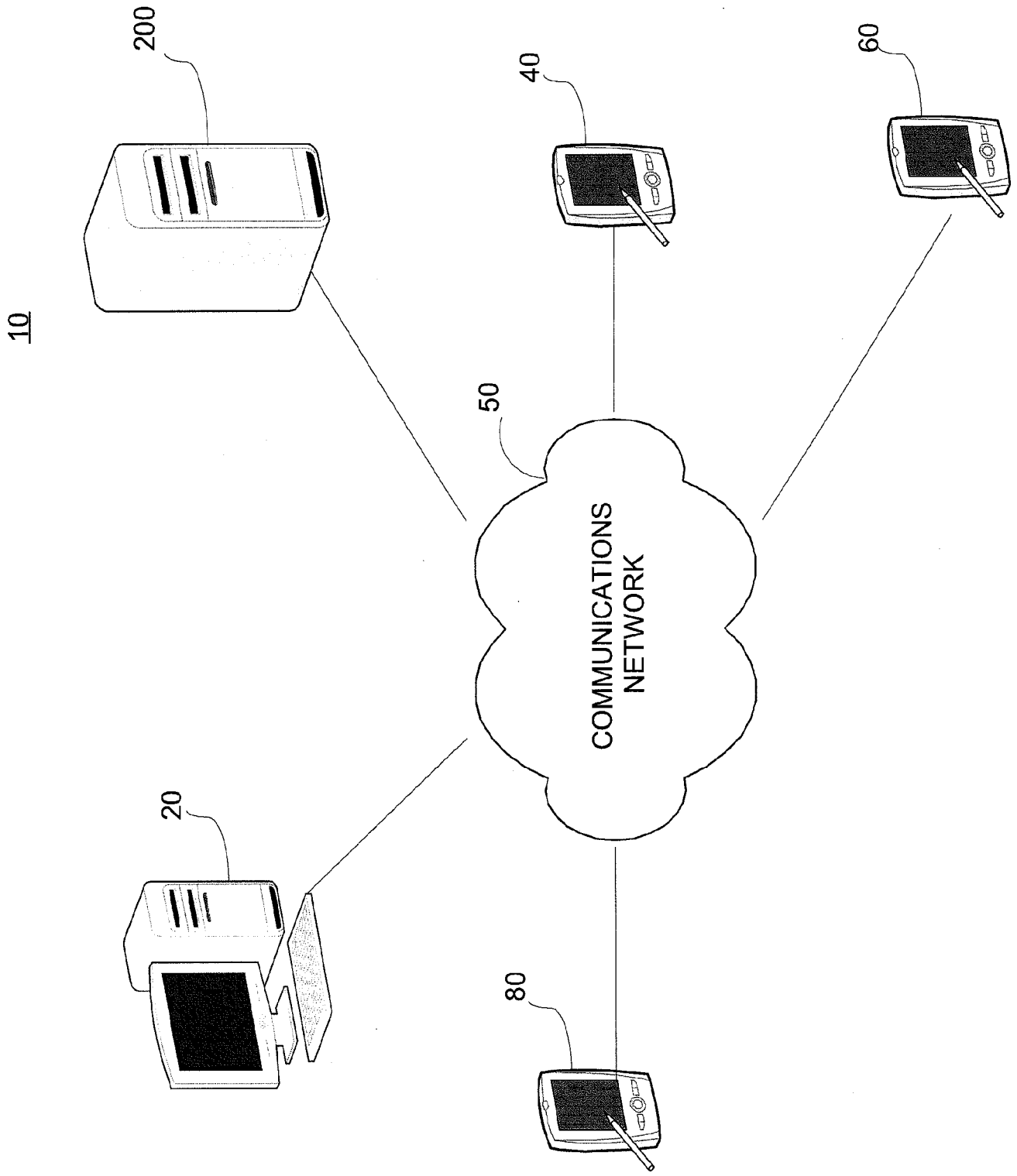


Figure 11