SUPPLEMENTARY MATERIAL

Modeling of Treatment Outcomes with Tofacitinib Maintenance Therapy in Patients with Ulcerative Colitis: A Post Hoc Analysis of Data from the OCTAVE Clinical Program

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All tables and figures in the Supplementary Material are included to support the interpretation of the data in the main text of the manuscript, and are cited in the text, where appropriate.

SUPPLEMENTARY MATERIAL

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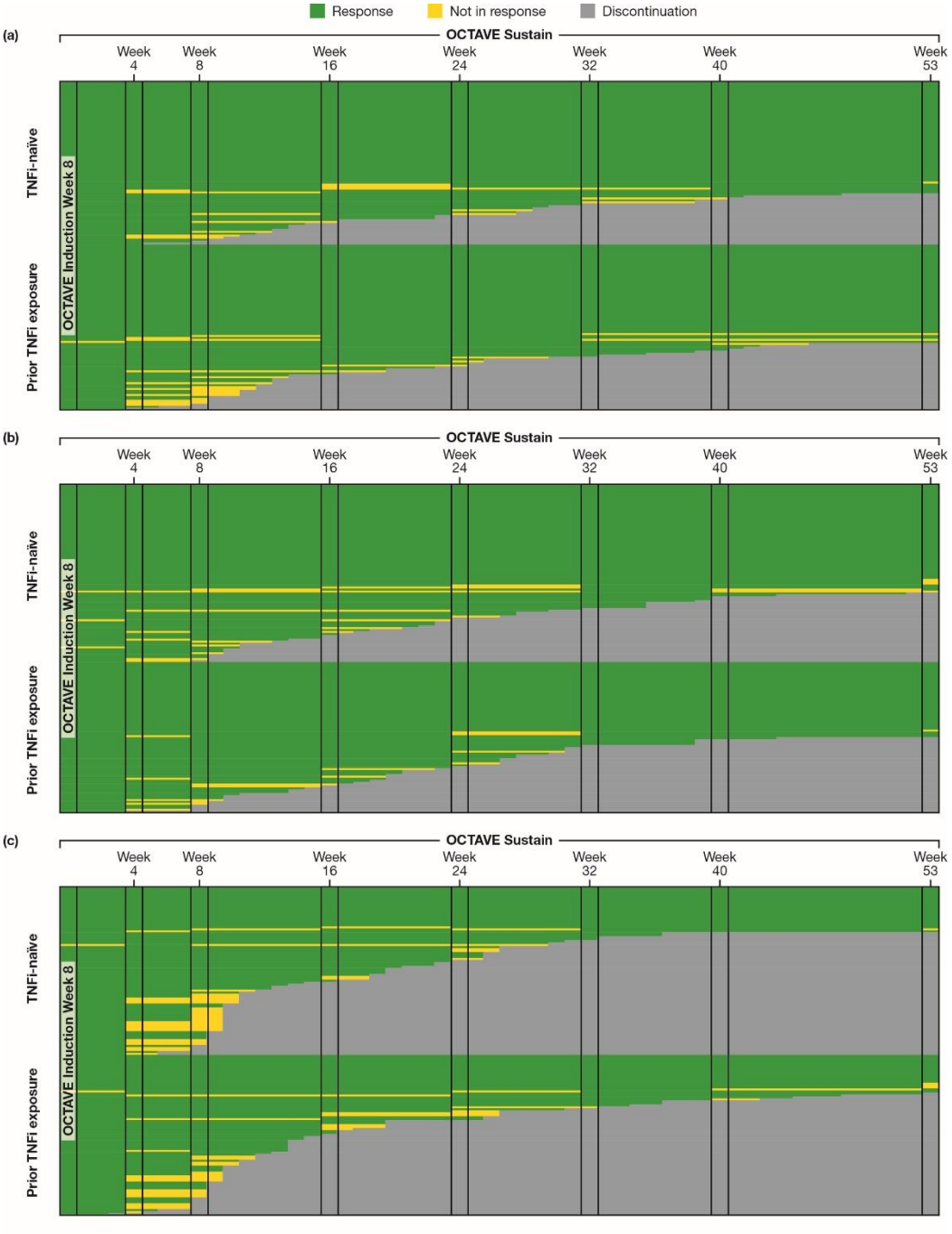
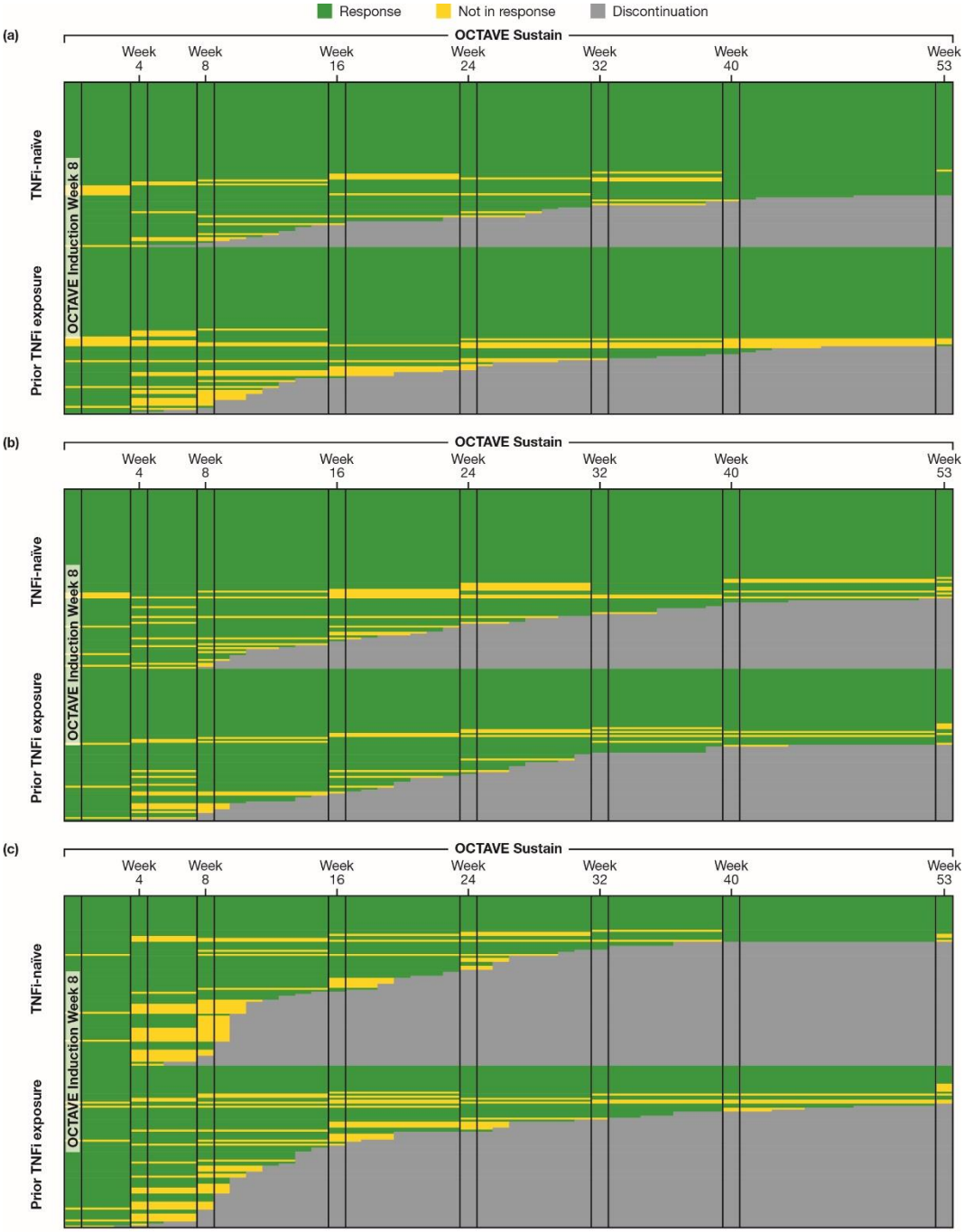


	Discontinuation		Not in response	
	Tofacitinib 5 mg BID	Placebo	Tofacitinib 5 mg BID	Placebo
Tofacitinib 10 mg BID	$p = 0.72$	$p = 0.022$	$p = 0.75$	$p = 0.025$
Tofacitinib 5 mg BID	–	$p = 0.004$	–	$p = 0.006$

BID twice daily, *PMS* partial Mayo score, *TNFi* tumor necrosis factor inhibitor

Fig. S2 Visualization of response, as defined by a 3-point change in PMS over time, stratified by TNFi exposure among patients in OCTAVE Sustain receiving **a)** tofacitinib 10 mg BID, **b)** tofacitinib 5 mg BID, or **c)** placebo.



	Discontinuation		Not in response	
	Tofacitinib 5 mg BID	Placebo	Tofacitinib 5 mg BID	Placebo
Tofacitinib 10 mg BID	$p = 0.72$	$p = 0.022$	$p = 0.84$	$p = 0.013$
Tofacitinib 5 mg BID	–	$p = 0.004$	–	$p = 0.004$

BID twice daily, *TNFi* tumor necrosis factor inhibitor, *PMS* partial Mayo score

Table S1 Definitions

Total Mayo score	The total Mayo score is defined as the sum of four subscores: stool frequency, rectal bleeding, endoscopic appearance, and Physician Global Assessment [14, 15]. Each subscore is ranked on a scale of 0–3; therefore, the total Mayo score ranges from 0–12, with higher scores indicating more severe disease.
PMS	The PMS includes the non-invasive components of the total Mayo score, but it excludes the endoscopic assessment. Each subscore is ranked on a scale of 0–3; therefore, the PMS ranges from 0–9, with higher scores indicating more severe disease.
Response	A 2- or 3-point decrease in PMS.
Non-response	Any patient who did not achieve a 2- or 3-point decrease in PMS.
Remission (PMS ≤ 1)	A PMS of 0–1, while a PMS of 7–9 was considered indicative of severe disease [14].

Table continues on the next page

Table S1 Definitions (continued)

Steroid-free remission (PMS ≤ 1)	A PMS of 0–1 in the absence of corticosteroid use. Tapering of corticosteroids was mandatory upon entry to OCTAVE Sustain; only patients who were taking steroids at baseline of OCTAVE Induction 1 and 2 were included in this analysis.
Baseline	Start of therapy in OCTAVE Induction 1 and 2.
Week 8 (of OCTAVE Induction)	Week 8 of OCTAVE Induction 1 and 2 and the start of OCTAVE Sustain for all responders in OCTAVE Induction 1 and 2.

PMS partial Mayo score

Table S2 Variables explored in the analysis from baseline to week 8 of OCTAVE Induction 1 and 2

PMS
Value at baseline and week 8 of induction
Monotonicity from baseline to week 8 of induction
Path length from baseline to week 8 of induction
Partial Mayo subscores
Stool frequency at baseline and week 8 of induction
Rectal bleeding at baseline and week 8 of induction
Physician Global Assessment at baseline and week 8 of induction
Physical attributes having a continuous value
Age, years
BMI, kg/m^2
Duration of UC, years
Medication use before induction
Prior use of TNFi before induction
Prior use of immunosuppressant before induction
Medication use during induction
Concomitant use of 5-ASA during induction
Concomitant use of corticosteroids during induction

Table continues on the next page

Table S2 Variables explored in the analysis from baseline to week 8 of OCTAVE Induction 1 and 2 (continued)

Medical history variables
Blood and lymphatic system disorders
Cardiac disorders
Gastrointestinal disorders
General disorders and administration site conditions
Hepatobiliary disorders
Immune system disorders
Infections and infestations
Investigations
Metabolism and nutrition disorders
Musculoskeletal and connective tissue disorders
Nervous system disorders
Psychiatric disorders
Respiratory, thoracic, and mediastinal disorders
Skin and subcutaneous tissue disorders
Vascular disorders
Other

Table continues on the next page

Table S2 Variables explored in the analysis from baseline to week 8 of OCTAVE Induction 1 and 2 (continued)

Vital signs values at baseline of induction
Blood pressure category, mmHg
Pulse rate, bpm
Laboratory variables at week 8 of induction
Albumin, g/dL
Alkaline phosphatase, IU/L
Alanine aminotransferase, IU/L
Aspartate aminotransferase, IU/L
Basophils, %
Bicarbonate, mEq/L
Total bilirubin, mg/dL
Calcium, mg/dL
Chloride, mEq/L
Cholesterol HDL, mg/dL
Cholesterol, mg/dL
Creatine kinase, U/L
Creatinine, mg/dL
C-reactive protein, mg/L
Eosinophils, %
Gamma glutamyl transferase, IU/L
Glucose, mg/dL

Table continues on the next page

Table S2 Variables explored in the analysis from baseline to week 8 of OCTAVE Induction 1 and 2 (continued)

Laboratory variables at week 8 of induction (continued)
Hemoglobin, g/dL
Lactate dehydrogenase, IU/L
Lymphocytes, $10^3/mm^3$
Mean corpuscular hemoglobin, pg
Monocytes, %
Neutrophils–lymphocytes ratio
Platelets, $10^3/mm^3$
Potassium, mEq/L
Protein, g/dL
Red blood cell distribution width, $10^6/mm^3$
Reticulocytes, %
Sodium, mEq/L
Triglycerides, mg/dL
Uric acid, mg/dL
White blood cells, $10^3/mm^3$

5-ASA 5-aminosalicylates, *BMI* body mass index, *HDL* high-density lipoprotein, *PMS* partial Mayo score, *TNFi* tumor necrosis factor inhibitors, *UC* ulcerative colitis

Table S3 Variables explored in the analysis including baseline of OCTAVE Induction 1 and 2 only

PMS
Value at baseline of induction
Partial Mayo subscores
Stool frequency at baseline of induction
Rectal bleeding at baseline of induction
Physician Global Assessment at baseline of induction
Physical attributes having a continuous value
Age, years
BMI, kg/m^2
Duration of UC, years
Medication use before induction
Prior use of 5-ASA before induction
Prior use of corticosteroids before induction
Prior use of TNFi before induction
Prior use of immunosuppressant before induction
Medical history variables
Blood and lymphatic system disorders
Cardiac disorders
Gastrointestinal disorders
General disorders and administration site conditions
Hepatobiliary disorders

Table continues on the next page

Table S3 Variables explored in the analysis including baseline of OCTAVE Induction 1 and 2 only (continued)

Medical history variables (continued)
Immune system disorders
Infections and infestations
Investigations
Metabolism and nutrition disorders
Musculoskeletal and connective tissue disorders
Nervous system disorders
Psychiatric disorders
Respiratory, thoracic, and mediastinal disorders
Skin and subcutaneous tissue disorders
Vascular disorders
Other
Vital signs values at baseline of induction
Blood pressure category, mmHg
Pulse rate, bpm
Laboratory variables at baseline of induction
Albumin, g/dL
Alkaline phosphatase, IU/L
Alanine aminotransferase, IU/L
Aspartate aminotransferase, IU/L
Basophils, %

Table continues on the next page

Table S3 Variables explored in the analysis including baseline of OCTAVE Induction 1 and 2 only (continued)

Laboratory variables at baseline of induction (continued)
Bicarbonate, mEq/L
Total bilirubin, mg/dL
Calcium, mg/dL
Chloride, mEq/L
Cholesterol HDL, mg/dL
Cholesterol, mg/dL
Creatine kinase, U/L
Creatinine, mg/dL
C-reactive protein, mg/L
Eosinophils, %
Gamma glutamyl transferase, IU/L
Glucose, mg/dL
Hemoglobin, g/dL
Lactate dehydrogenase, IU/L
Lymphocytes, $10^3/mm^3$
Mean corpuscular hemoglobin, pg
Monocytes, %
Neutrophils–lymphocytes ratio
Platelets, $10^3/mm^3$
Potassium, mEq/L

Table continues on the next page

Table S3 Variables explored in the analysis including baseline of OCTAVE Induction 1 and 2 only (continued)

Laboratory variables at baseline of induction (continued)
Protein, g/dL
Red blood cell distribution width, $10^6/mm^3$
Reticulocytes, %
Sodium, mEq/L
Triglycerides, mg/dL
Uric acid, mg/dL
White blood cells, $10^3/mm^3$

5-ASA 5-aminosalicylates, *BMI* body mass index, *HDL* high-density lipoprotein, *PMS* partial Mayo score, *TNFi* tumor necrosis factor inhibitors, *UC* ulcerative colitis

Table S4 Variables explored in the hypothesis-based model

Total Mayo score
PMS
Partial Mayo subscores
Stool frequency
Rectal bleeding
Physician Global Assessment
Medication use before induction
Prior use of steroids before induction
Prior use of TNFi before induction
Medical history variables
Gastrointestinal disorders
Immune system disorders
Musculoskeletal and connective tissue disorders
Skin and subcutaneous tissue disorders
Laboratory variables at baseline of induction
Albumin, g/dL
Cholesterol HDL, mg/dL
Cholesterol, mg/dL
C-reactive protein, mg/L

Variables included in the hypothesis-based model were selected based on information extracted from the current literature and the expert opinion of the authors. *HDL* high-density lipoprotein, *PMS* partial Mayo score, *TNFi* tumor necrosis factor inhibitors

Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain

	Whole set of patients		Testing set of training-testing split	
2-point PMS loss of responder status				
Tofacitinib 10 mg BID				
AUROC value	0.72		0.56	
(baseline only)		**OR point estimates (95% Wald CI)**		**OR point estimates (95% Wald CI)**
	Age, years	0.954 (0.921–0.987)	Age, years	0.909 (0.855–0.967)
	Monocytes, %	3.743 (1.074–13.048)	Medical history of investigations, 1 vs 0	11.059 (1.538–79.527)
	Neutrophils–lymphocytes ratio	1.136 (1.016–1.270)	Medical history of vascular disorders, 1 vs 0	10.872 (1.114–106.050)
	Total bilirubin, mg/dL	0.047 (0.004–0.530)	Monocytes, %	6.923 (1.345–35.623)

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Platelets, $10^3/mm^3$	1.006 (1.001–1.012)
Neutrophils–lymphocytes ratio	1.246 (1.065–1.457)

Table continues on the next page

Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

AUROC value (baseline to week 8)	0.83		0.70	
	OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**	
PMS	1.606 (1.070–2.410)		Concomitant use of corticosteroids, 1 vs 0	5.284 (1.855–15.051)
Age, years	0.952 (0.914–0.991)		Platelets, $10^3/mm^3$	1.011 (1.004–1.018)
Concomitant use of corticosteroids, 1 vs 0	6.180 (2.406–15.871)			
Platelets, $10^3/mm^3$	1.010 (1.004–1.017)			

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Tofacitinib 5 mg BID				
AUROC value (baseline only)	0.73		0.50	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Prior immunosuppressant use before induction, 1 vs 0	4.353 (1.368–13.851)	Prior 5-ASA use before induction, 1 vs 0	2.724 (1.048–7.084)
	Medical history of musculoskeletal and connective tissue disorder, 1 vs 0	3.854 (1.495–9.937)	Medical history of musculoskeletal and connective tissue disorder, 1 vs 0	3.414 (1.041–11.192)
	Alanine aminotransferase, IU/L	1.024 (0.933–1.056)	Alanine aminotransferase, IU/L	1.032 (1.001–1.063)
	Aspartate aminotransferase, IU/L	0.887 (0.816–0.965)	Aspartate aminotransferase, IU/L	0.822 (0.733–0.921)

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

AUROC value (baseline to week 8)	0.84		0.73	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Concomitant use of corticosteroids, 1 vs 0	3.001 (1.231–7.318)	BMI, kg/m^2	1.197 (1.054–1.359)
	Prior immunosuppressant use before induction, 1 vs 0	5.248 (1.421–19.390)	Concomitant use of corticosteroids, 1 vs 0	8.566 (2.437–30.109)
	Albumin, g/dL	0.022 (0.003–0.144)	Prior immunosuppressant use before induction, 1 vs 0	6.913 (1.215–39.328)
	Chloride, mEq/L	0.812 (0.683–0.966)	Prior TNFi use before induction, 1 vs 0	4.886 (1.396–17.104)
	Lymphocytes, $10^3/mm^3$	1.948 (1.156–3.285)	Total bilirubin, mg/dL	0.019 (0.002–0.209)

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

			Cholesterol, mg/dL	0.988 (0.976–1.000)
			Potassium, mEq/L	0.088 (0.012–0.618)
3-point PMS loss of responder status				
Tofacitinib 10 mg BID				
AUROC value (baseline only)	0.79		0.63	
	OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**	
	Age, years	0.929 (0.890–0.969)	Age, years	0.908 (0.855–0.965)

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Medical history of cardiac disorders, 1 vs 0	14.262 (1.717–118.471)
Monocytes, %	3.343 (0.897–12.450)
Neutrophils–lymphocytes ratio	1.184 (1.037–1.352)
Platelets, $10^3/mm^3$	1.005 (1.000–1.010)

Medical history of cardiac disorders, 1 vs 0	25.314 (1.864–343.755)
Medical history of investigations, 1 vs 0	8.412 (0.889–79.601)
Monocytes, %	6.458 (1.244–33.523)
Neutrophils–lymphocytes ratio	1.266 (1.074–1.492)
Platelets, $10^3/mm^3$	1.007 (1.001–1.012)

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

AUROC value (baseline to week 8)	0.86		0.77	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Age, years	0.926 (0.878–0.977)	Concomitant use of corticosteroids, 1 vs 0	4.395 (1.489–12.966)
	Concomitant use of corticosteroids, 1 vs 0	4.750 (1.567–14.403)	Platelets, $10^3/mm^3$	1.011 (1.004–1.018)
	Creatinine, mg/dL	135.233 (3.288–>999.999)	Sodium, mEq/L	0.759 (0.590–0.977)
	Glucose, mg/dL	1.057 (0.999–1.119)		
	Platelets, $10^3/mm^3$	1.015 (1.007–1.023)		

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Potassium, mEq/L	0.139 (0.027–0.711)
Sodium, mEq/L	0.751 (0.581–0.970)

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Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Tofacitinib 5 mg BID				
AUROC value (baseline only)	0.77		0.44	
	OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**	
Age, years	0.959 (0.927–0.991)		Prior 5-ASA use before induction, 1 vs 0	2.976 (1.166–7.596)
BMI, kg/m^2	1.103 (1.011–1.204)		Alanine aminotransferase, IU/L	1.029 (0.999–1.059)
Prior immunosuppressant use before induction, 1 vs 0	5.162 (1.494–17.837)		Aspartate aminotransferase, IU/L	0.836 (0.750–0.933)

Table continues on the next page

Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Medical history of musculoskeletal and connective tissue disorders, 1 vs 0	3.020 (1.102–8.275)
Aspartate aminotransferase, IU/L	0.936 (0.880–0.996)
Protein, g/dL	0.418 (0.205–0.851)

Table continues on the next page

Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

AUROC value (baseline to week 8)	0.81		0.68	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Concomitant use of corticosteroids, 1 vs 0	2.415 (1.014–5.753)	PMS	2.995 (1.440–6.227)
	Prior immunosuppressant use before induction, 1 vs 0	5.081 (1.438–17.957)	BMI, kg/m^2	1.305 (1.099–1.550)
	Albumin, g/dL	0.043 (0.008–0.244)	Duration of UC, years	1.141 (1.001–1.300)
	Chloride, mEq/L	0.835 (0.706–0.987)	Concomitant use of corticosteroids, 1 vs 0	17.364 (3.624–83.200)

Table continues on the next page

Table S5 Relative importance of the variables from the logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain (continued)

Lymphocytes, $10^3/mm^3$	1.786 (1.077–2.963)
Prior immunosuppressant use before induction, 1 vs 0	13.593 (1.159–159.497)
Total bilirubin, mg/dL	0.016 (< 0.001–0.308)
Creatinine, mg/dL	0.003 (< 0.001–0.293)
Potassium, mEq/L	0.047 (0.005–0.480)
Neutrophils–lymphocytes ratio	0.731 (0.584–0.914)

5-ASA 5-aminosalicylates, *AUROC* area under the receiver operating characteristic, *BID* twice daily, *BMI* body mass index, *CI* confidence interval, *OR* odds ratio, *PMS* partial Mayo score, *TNFi* tumor necrosis factor inhibitors, *UC* ulcerative colitis

Table S6 Summary of AUROC values from LASSO logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain

	Testing set of training-testing split		5-fold cross-validation	
	AUROC value (baseline only)	**AUROC value (baseline to week 8)**	**AUROC value (baseline only)**	**AUROC value (baseline to week 8)**
2-point PMS loss of responder status				
Tofacitinib 10 mg BID	0.60	0.54	0.59	0.56
Tofacitinib 5 mg BID	0.50	0.50	0.49	0.41
3-point PMS loss of responder status				
Tofacitinib 10 mg BID	0.61	0.55	0.57	0.57
Tofacitinib 5 mg BID	0.50	0.50	0.48	0.49

AUROC area under the receiver operating characteristic, *BID* twice daily, *LASSO* Least Absolute Shrinkage and Selection Operator, *PMS* partial Mayo score

Table S7 Summary of AUROC values from the hypothesis-based LASSO logistic regression analyses of loss of responder status at week 8 of OCTAVE Sustain

	Testing set of training-testing split				**5-fold cross-validation**			
	AUROC value (baseline only)		**AUROC value (baseline to week 8)**		**AUROC value (baseline only)**		**AUROC value (baseline to week 8)**	
	PMS	**Total Mayo score**	**PMS**	**Total Mayo score**	**PMS**	**Total Mayo score**	**PMS**	**Total Mayo score**
2-point PMS loss of responder status								
Tofacitinib 10 mg BID	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40
Tofacitinib 5 mg BID	0.50	0.50	0.50	0.50	0.41	0.41	0.43	0.41
3-point PMS loss of responder status								
Tofacitinib 10 mg BID	0.50	0.50	0.50	0.50	0.40	0.40	0.40	0.40
Tofacitinib 5 mg BID	0.50	0.50	0.50	0.50	0.43	0.43	0.45	0.43

AUROC area under the receiver operating characteristic, *BID* twice daily, *LASSO* Least Absolute Shrinkage and Selection Operator, *PMS* partial Mayo score

Table S8 Summary of AUROC values from hypothesis-based logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain without applying variable selection

	Testing set of training-testing set		k-fold cross-validation			
	AUROC value (baseline only)	**AUROC value (baseline to week 8)**	**AUROC value (baseline only)**		**AUROC value (baseline to week 8)**	
			5-fold cross-validation	**10-fold cross-validation**	**5-fold cross-validation**	**10-fold cross-validation**
Treatments combined						
PMS	0.69	0.79	0.64	0.64	0.73	0.73
Partial Mayo subscores[b]	0.68	0.80	0.64	0.64	0.72	0.72
Total Mayo score	0.69	0.79	0.64	0.64	0.71	0.71
Total Mayo subscores[c]	0.68	0.79	0.64	0.64	0.72	0.72

AUROC area under the receiver operating characteristic, *PMS* partial Mayo score. [b]Stool frequency, rectal bleeding, and Physician Global Assessment. [c]Stool frequency, rectal bleeding, endoscopic appearance, and Physician Global Assessment

Table S9 Relative importance of the variables from logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE sustain without applying variable selection

	Testing set of training-testing split			
	AUROC value (baseline only)		**AUROC value (baseline to week 8)**	
Tofacitinib 10 mg BID	0.70		0.75	
	OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**	
	Stool frequency subscore	0.475 (0.249–0.907)	PMS	0.293 (0.161–0.532)
	Duration of UC, years	1.125 (1.031–1.227)	Age, years	1.051 (1.001–1.104)
	Aspartate aminotransferase, IU/L	1.071 (0.991–1.158)	Medical history of infections and infestations, 1 vs 0	12.929 (0.590–283.369)

Table continues on the next page

Table S9 Relative importance of the variables from logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE sustain without applying variable selection (continued)

Hemoglobin, g/dL	0.584 (0.416–0.820)
Red blood cell distribution width, $10^6/mm^3$	0.627 (0.480–0.820)
Basophils, %	< 0.001 (< 0.001–5.790)
Bicarbonate, mEq/L	0.683 (0.530–0.881)
Lactate dehydrogenase, IU/L	1.023 (1.008–1.039)
Neutrophils–lymphocytes ratio	0.702 (0.524–0.939)

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Table S9 Relative importance of the variables from logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE sustain without applying variable selection (continued)

Tofacitinib 5 mg BID	0.69	0.71

	OR point estimates (95% Wald CI)
Age, years	1.030 (1.001–1.060)

	OR point estimates (95% Wald CI)
PMS	0.427 (0.273–0.670)
Glucose, mg/dL	1.030 (1.000–1.060)
Potassium, mEq/L	5.184 (1.497–17.952)

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Table S9 Relative importance of the variables from logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE sustain without applying variable selection (continued)

Placebo	0.55	0.68

	OR point estimates (95% Wald CI)
Age, years	1.045 (1.007–1.084)
Total bilirubin, mg/dL	29.759 (2.632–337.582)
Creatinine, mg/dL	0.053 (0.003–0.818)

	OR point estimates (95% Wald CI)
PMS	0.593 (0.386–0.911)
Age, years	1.045 (1.006–1.086)
Calcium, mg/dL	4.236 (1.321–13.577)
Gamma glutamyl transferase, IU/L	0.909 (0.853–0.969)

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Table S9 Relative importance of the variables from logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE sustain without applying variable selection (continued)

Treatments combined	0.66	0.79

	OR point estimates (95% Wald CI)
Stool frequency subscore	0.621 (0.449–0.857)
Age, years	1.029 (1.010–1.048)
Hemoglobin, g/dL	0.747 (0.633–0.881)
Protein, g/dL	1.713 (1.065–2.754)

	OR point estimates (95% Wald CI)
PMS	0.550 (0.441–0.686)
Age, years	1.028 (1.009–1.048)
Albumin, g/dL	2.335 (0.997–5.467)
Tofacitinib 10 vs 5 mg BID	1.300 (0.716–2.359)

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Table S9 Relative importance of the variables from logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE sustain without applying variable selection (continued)

Red blood cell distribution width, $10^6/mm^3$	0.779 (0.685–0.885)
Tofacitinib 10 vs 5 mg BID	1.268 (0.711–2.261)
Placebo vs tofacitinib 5 mg BID	0.306 (0.167–0.562)
Placebo vs tofacitinib 5 mg BID	0.328 (0.176–0.609)

AUROC area under the receiver operating characteristic, *BID* twice daily, *CI* confidence interval, *OR* odds ratio, *PMS* partial Mayo score, *UC* ulcerative colitis

[a]Steroid-free remission was defined as a PMS of 0–1 in the absence of corticosteroids

Table S10 Relative importance of the variables from hypothesis-based logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain applying variable selection

	Testing set of training-testing split			
	AUROC value (baseline to week 8)			
	PMS		**Total Mayo score**	
Tofacitinib 10 mg BID	0.77		0.78	
	OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**	
	PMS	0.438 (0.298–0.643)	Total Mayo score	0.581 (0.477–0.755)

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Table S10 Relative importance of the variables from hypothesis-based logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain applying variable selection (continued)

Tofacitinib 5 mg BID	0.73	0.69

	OR point estimates (95% Wald CI)
PMS	0.542 (0.380–0.772)

	OR point estimates (95% Wald CI)
Stool frequency subscore	0.533 (0.303–0.940)
Physician Global Assessment subscore	0.442 (0.224–0.874)

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Table S10 Relative importance of the variables from hypothesis-based logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain applying variable selection (continued)

Placebo	0.66		0.66	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Medical history of skin and subcutaneous tissue disorders, 1 vs 0	0.176 (0.034–0.901)	Medical history of skin and subcutaneous tissue disorders, 1 vs 0	0.191 (0.039–0.943)
	Cholesterol HDL, mg/dL	1.021 (1.002–1.040)	Cholesterol HDL, mg/dL	1.021 (1.002–1.040)
	PMS	0.633 (0.439–0.913)	Total Mayo score	0.709 (0.550–0.914)

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Table S10 Relative importance of the variables from hypothesis-based logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain applying variable selection (continued)

Treatments combined	0.78	0.79

	OR point estimates (95% Wald CI)
PMS	0.543 (0.443–0.667)
Tofacitinib 10 vs 5 mg BID	1.218 (0.704–2.106)
Placebo vs tofacitinib 5 mg BID	0.321 (0.181–0.570)

	OR point estimates (95% Wald CI)
Total Mayo score	0.550 (0.445–0.681)
Flexible sigmoidoscopy findings	1.717 (1.161–2.540)
Tofacitinib 10 vs 5 mg BID	1.218 (0.705–2.107)
Placebo vs tofacitinib 5 mg BID	0.321 (0.180–0.570)

AUROC area under the receiver operating characteristic, *BID* twice daily, *CI* confidence interval, *HDL* high-density lipoprotein, *OR* odds ratio, *PMS* partial Mayo score. [a]Steroid-free remission was defined as a PMS of 0–1 in the absence of corticosteroids

Table S11 Summary of AUROC values from logistic regression analyses using a 10-fold cross-validation approach to predict steroid-free remission[a] at week 52 of OCTAVE Sustain without applying variable selection

	10-fold cross-validation	
	AUROC value (baseline only)	**AUROC value (baseline to week 8)**
Tofacitinib 10 mg BID	0.60	0.71
Tofacitinib 5 mg BID	0.45	0.68
Placebo	0.49	0.55
Treatments combined	0.65	0.75

AUROC area under the receiver operating characteristic, *BID* twice daily, *PMS* partial Mayo score

[a]Steroid-free remission was defined as a PMS of 0–1 in the absence of corticosteroids

Table S12 Summary of AUROC values from LASSO logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain

	Testing set of training-testing split		k-fold cross-validation			
	AUROC value (baseline only)	AUROC value (baseline to week 8)	AUROC value (baseline only)		AUROC value (baseline to week 8)	
			5-fold cross-validation	10-fold cross-validation	5-fold cross-validation	10-fold cross-validation
Tofacitinib 10 mg BID	0.50	0.51	0.43	0.38	0.47	0.48
Tofacitinib 5 mg BID	0.50	0.50	0.43	0.38	0.43	0.39
Placebo	0.50	0.50	0.45	0.42	0.55	0.56
Treatments combined	0.50	0.50	0.47	0.46	0.48	0.50

AUROC area under the receiver operating characteristic, *BID* twice daily, *LASSO* Least Absolute Shrinkage and Selection Operator, *PMS* partial Mayo score

[a]Steroid-free remission was defined as a PMS of 0–1 in the absence of corticosteroids

Table S13 Summary of AUROC values from hypothesis-based logistic regression analyses using a 10-fold cross-validation approach to predict steroid-free remission[a] at week 52 of OCTAVE Sustain applying variable selection

	10-fold cross-validation			
	AUROC value (baseline only)		**AUROC value (baseline to week 8)**	
	PMS	**Total Mayo score**	**PMS**	**Total Mayo score**
Tofacitinib 10 mg BID	0.57	0.56	0.72	0.70
Tofacitinib 5 mg BID	0.42	0.42	0.65	0.62
Placebo	0.38	0.39	0.58	0.62
Treatments combined	0.64	0.65	0.73	0.73

AUROC area under the receiver operating characteristic, *BID* twice daily, *PMS* partial Mayo score

[a]Steroid-free remission was defined as a PMS of 0–1 in the absence of corticosteroids

Table S14 Summary of AUROC values from hypothesis-based LASSO logistic regression analyses predicting steroid-free remission[a] at week 52 of OCTAVE Sustain

	Testing set of training-testing split				**k-fold cross-validation**							
	AUROC value (baseline only)		**AUROC value (baseline to week 8)**		**AUROC value (baseline only)**				**AUROC value (baseline to week 8)**			
					5-fold cross-validation		**10-fold cross-validation**		**5-fold cross-validation**		**10-fold cross-validation**	
	PMS	**Total Mayo score**	**PMS**	**Total Mayo score**	**PMS**	**Total Mayo score**	**PMS**	**Total Mayo score**	**PMS**	**Total Mayo score**	**PMS**	**Total Mayo score**
Tofacitinib 10 mg BID	0.50	0.50	0.50	0.50	0.44	0.44	0.37	0.37	0.55	0.56	0.58	0.60
Tofacitinib 5 mg BID	0.50	0.50	0.50	0.50	0.41	0.41	0.38	0.38	0.42	0.44	0.38	0.43
Placebo	0.50	0.50	0.50	0.50	0.44	0.44	0.42	0.42	0.43	0.44	0.39	0.42
Treatments combined	0.50	0.50	0.76	0.78	0.59	0.56	0.61	0.60	0.72	0.72	0.72	0.72

See footnotes on the next page

AUROC area under the receiver operating characteristic, *BID* twice daily, *LASSO* Least Absolute Shrinkage and Selection Operator, *PMS* partial Mayo score

[a]Steroid-free remission was defined as a PMS of 0–1 in the absence of corticosteroids

Table S15 Relative importance of the variables from logistic regression analyses predicting delayed response at week 8 of OCTAVE Open

	Whole set of patients			
	AUROC value (baseline only)		**AUROC value (baseline to week 8)**	
PMS				
Measured values	0.63		0.76	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Duration of UC, years	1.066 (1.021–1.113)	PMS	0.738 (0.598–0.909)
	Medical history of hepatobiliary disorders	4.803 (0.952–24.219)	PMS monotonicity from induction study baseline to week 8	0.343 (0.121–0.977)
	Creatinine, mg/dL	0.121 (0.028–0.530)	Duration of UC, years	1.072 (1.022–1.124)

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Table S15 Relative importance of the variables from logistic regression analyses predicting delayed response at week 8 of OCTAVE Open (continued)

Basophils, %	< 0.001 (< 0.001–< 0.001)
Creatinine, mg/dL	0.181 (0.038–0.877)
Red blood cell distribution width, $10^6/mm^3$	0.869 (0.778–0.969)
Differences –	0.71

	OR point estimates (95% Wald CI)
Difference in PMS from induction study baseline to week 8	0.601 (0.470–0.768)

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Table S15 Relative importance of the variables from logistic regression analyses predicting delayed response at week 8 of OCTAVE Open (continued)

Duration of UC, years	1.069 (1.018–1.122)
Medical history of hepatobiliary disorders	6.468 (1.080–38.739)
Difference in gamma glutamyl transferase from induction study baseline to week 8	1.033 (1.003–1.063)

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Table S15 Relative importance of the variables from logistic regression analyses predicting delayed response at week 8 of OCTAVE Open (continued)

Individual partial Mayo subscores				
Measured values	0.66		0.75	
		OR point estimates (95% Wald CI)		**OR point estimates (95% Wald CI)**
	Stool frequency subscore	0.657 (0.448–0.965)	Stool frequency subscore	0.539 (0.371–0.783)
	Duration of UC, years	1.064 (1.019–1.111)	Physician Global Assessment subscore	0.631 (0.412–0.968)
	Medical history of hepatobiliary disorders	5.162 (1.013–26.305)	Duration of UC, years	1.073 (1.025–1.124)
	Creatinine, mg/dL	0.131 (0.029–0.584)	Basophils, %	< 0.001 (< 0.001–0.003)

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Table S15 Relative importance of the variables from logistic regression analyses predicting delayed response at week 8 of OCTAVE Open (continued)

		Red blood cell distribution width, $10^6/mm^3$	0.881 (0.793–0.979)
Differences	–	0.71	

	OR point estimates (95% Wald CI)
Difference in stool frequency subscore from induction study baseline to week 8	0.484 (0.313–0.747)
Difference in Physician Global Assessment subscore from induction study baseline to week 8	0.588 (0.372–0.929)

Table continues on the next page

Table S15 Relative importance of the variables from logistic regression analyses predicting delayed response at week 8 of OCTAVE Open (continued)

Duration of UC, years	1.070 (1.019–1.124)
Medical history of hepatobiliary disorders	5.609 (1.020–30.841)
Difference in gamma glutamyl transferase from induction study baseline to week 8	1.033 (1.004–1.064)

- variable importance not generated due to poor model performance, *AUROC* area under the receiver operating characteristic, *BID* twice daily, *CI* confidence interval, *OR*, odds ratio, *PMS* partial Mayo score, *UC* ulcerative colitis

Table S16 Summary of AUROC values from logistic regression analyses using a 10-fold cross-validation approach to predict delayed response at week 8 of OCTAVE Open

	10-fold cross-validation	
	AUROC value (baseline only)	**AUROC value (baseline to week 8)**
PMS		
Measured values	0.55	0.65
Differences	–	0.64
Individual partial Mayo subscores		
Measured values	0.54	0.65
Differences	–	0.59

AUROC area under the receiver operating characteristic, *PMS* partial Mayo score

Table S17 Summary of AUROC values from hypothesis-based logistic regression analyses using a 10-fold cross-validation approach to predict delayed response at week 8 of OCTAVE Open and applying variable selection

	10-fold cross-validation	
	AUROC value (baseline only)	**AUROC value (baseline to week 8)**
PMS and subscores[a]	0.46	0.64
Total Mayo score and subscores[b]	0.45	0.65

[a]Stool frequency, rectal bleeding, and Physician Global Assessment

[b]Stool frequency, rectal bleeding, endoscopic appearance, and Physician Global Assessment

AUROC area under the receiver operating characteristic, *PMS* partial Mayo score