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Cost-effectiveness analysis of abrocitinib compared with other systemic treatments for severe atopic dermatitis in Spain

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Table S1 Annualized rate of adverse events

Adverse event	Recurrence	Abrocitinib 200 mg	Dupilumab 300 mg	Tralokinumab 300mg	Baricitinib 2 mg	Baricitinib 4 mg	Upadacitinib 15mg	Upadacitinib 30mg
Acne	Each cycle	20.1%	0.0%	0.0%	3.0%	11.3%	14.7%	39.5%
Conjunctivitis	Each cycle	4.3%	13.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Atopic dermatitis	Each cycle	4.3%	18.2%	8.3%	0.0%	0.0%	14.7%	27.8%
Headache	Tx initiation only	20.1%	4.5%	16.0%	0.0%	0.0%	21.5%	27.8%
Injection site reaction	Tx initiation only	0.0%	14.5%	8.3%	0.0%	0.0%	0.0%	0.0%
Nasopharyngitis	Each cycle	20.1%	22.7%	0.0%	31.6%	41.8%	27.8%	21.5%
Nausea	Tx initiation only	31.8%	0.0%	0.0%	0.0%	0.0%	7.6%	21.5%
Oral herpes	Each cycle	2.9%	3.6%	0.0%	11.5%	11.3%	0.0%	0.0%
Sinusitis	Each cycle	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Upper respiratory tract infection	Each cycle	12.4%	10.0%	23.2%	22.0%	8.5%	33.9%	33.9%
Urinary tract infection	Each cycle	9.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Folliculitis	Each cycle	5.7%	1.8%	0.0%	11.5%	16.6%	0.0%	0.0%

References	Assumptions	Bieber, 2021[24]	Blauvelt, 2017 [35]	Wollenberg, 2019 [36]	Reich, 2020 [37]	Reich, 2020 [37]	Guttman-Yassky, 2020 [38]	Guttman-Yassky, 2020 [38]

Tx: treatment

Table S2 Distribution and parameters employed in the probabilistic sensitivity analysis

Input	Distribution	Comparator	Parameters
Response at 16 weeks	Beta	Abrocitinib 200 mg	**α:** 11 **β:** 4
		Dupilumab 300 mg	**α:** 17 **β:** 10
		Tralokinumab 300 mg	**α:** 22 **β:** 23
		Baricitinib 2 mg	**α:** 26 **β:** 36
		Baricitinib 4 mg	**α:** 23 **β:** 26
		Upadacitinib 15 mg	**α:** 14 **β:** 7
		Upadacitinib 30 mg	**α:** 8 **β:** 2
Response at 52 weeks	Beta	Abrocitinib 200 mg	**α:** 41 **β:** 2
		Dupilumab 300 mg	**α:** 42 **β:** 9
		Tralokinumab 300 mg	**α:** 42 **β:** 9
		Baricitinib 2 mg	**α:** 7 **β:** 1
		Baricitinib 4 mg	**α:** 3 **β:** 0
		Upadacitinib 15 mg	**α:** 21 **β:** 6
		Upadacitinib 30 mg	**α:** 10 **β:** 1
Annual loss of response	Beta	Abrocitinib 200 mg	**α:** 41 **β:** 506
		Dupilumab 300 mg	**α:** 33 **β:** 101
		Tralokinumab 300 mg	**α:** 33 **β:** 101
		Baricitinib 2 mg	**α:** 34 **β:** 108
		Baricitinib 4 mg	**α:** 39 **β:** 313
		Upadacitinib 15 mg	**α:** 31 **β:** 75
		Upadacitinib 30 mg	**α:** 38 **β:** 217
Discontinuation rates (0-52 Weeks)	Beta	All comparators	**α** = 41,31; **β** = 557,37
Discontinuation rates, post-initiation period (+52 Weeks)	Beta	All comparators	**α** = 24; **β** = 357
Medical resource utilization: responders	Gamma	All comparators	
Hospitalization			**α** = 0.1837; **β** = 1.6333
Emergency room			**α** = 0.1111; **β** = 5.4000
Primary care			**α** = 1.1857; **β** = 8.2653
Medical resource utilization: non-responders	Gamma	All comparators	
Hospitalization			**α** = 0.2066; **β** = 2.4200
Emergency room			**α** = 0.1759; **β** = 7.3923
Primary care			**α** = 0.8279; **β** = 25.6080
Medical resource: cost per visit	Gamma	All comparators	
Hospitalization			**α** = 100; **β** = 30.5993
Emergency room			**α** = 100; **β** = 2.6838
Primary care			**α** = 100; **β** = 0.4160
Medical resource utilization: annual cost	Gamma	All comparators	
Responders			**α** = 44.4444; **β** = 3.8968
Non-Responders			**α** = 44.4444; **β** = 94.3535

AE management costs **ophthalmology visit** **dermatology visit**	Gamma	All comparators	 **α** = 44.4444; **β** = 1.6803 **α** = 44.4444; **β** = 1.8869
Baseline utility	Beta	All comparators	**α** = 8.9937; **β** = 5.6154
Utility weight, treatment responders			**α** = 2.1919; **β** = 0.3067
Utility weight, treatment non-responders			**α** = 4.7801; **β** = 1.3665
Population norms (EQ-5D-3L): **age 18-24** **age 25-34** **age 35-44** **age 45-54** **age 55-74** **age +75**	Beta	All comparators	 **α** = 0.8180; **β** = 0.0150 **α** = 1.5250; **β** = 0.0391 **α** = 4.1510; **β** = 0.2231 **α** = 6.7770; **β** = 0.5654 **α** = 9.5040; **β** = 1.1031 **α** = 21.1190; **β** = 5.9220

AE: adverse event; EQ-5D-3L: EuroQoL 5-Dimension 3-Level

Table S3 Alternative scenarios with variations in discontinuation rates

Annual discontinuation probability	**Abrocitinib 200mg**	**Dupilumab 300 mg**	**Tralokinumab 300 mg**	**Baricitinib 2 mg**	**Baricitinib 4 mg**	**Upadacitinib 15 mg**	**Upadacitinib 30 mg**
Scenario 1							
16-52 weeks	6.9%	16.9%	16.9%	16.9%	16.9%	16.9%	16.9%
52 weeks +	16.3%	6.3%	16.3%	16.3%	16.3%	16.3%	16.3%
Scenario 2							
16-52 weeks	6.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
52 weeks +	4.3%	6.3%	4.3%	4.3%	4.3%	4.3%	4.3%
Scenario 3							
16-52 weeks	6.9%	8.9%	8.9%	6.9%	6.9%	6.9%	6.9%
52 weeks +	8.3%	6.3%	6.3%	8.3%	8.3%	8.3%	8.3%
Scenario 4							
16-52 weeks	6.9%	4.9%	4.9%	6.9%	6.9%	6.9%	6.9%
52 weeks +	4.3%	6.3%	6.3%	4.3%	4.3%	4.3%	4.3%

*Discontinuation scenarios: 1. Maintaining the values of abrocitinib for 16-52 weeks (6.9%) and dupilumab for +52 weeks (6.3%) and increasing the other values by 10%; 2. Maintaining the values of abrocitinib for 16-52 weeks (6.9%) and dupilumab for +52 weeks (6.3%) and decreasing the other values by 2%; 3, Using the same values for the same drug type, and increasing the others by 2%; 4. Using the same values for the same drug type, and decreasing the others by 2%.

Table S4 5-year time horizon PSA results

Results	Abrocitinib 200 mg vs					
	Dupilumab 300 mg	**Tralokinumab 300 mg**	**Baricitinib 2 mg**	**Baricitinib 4 mg**	**Upadacitinib 15 mg**	**Upadacitinib 30 mg**
Dominant	**87.9%**	**88.8%**	**83.0%**	**66.8%**	**81.8%**	**49.5%**
Cost-effective	**0.3%**	**0.5%**	**5.7%**	**13.9%**	**2.3%**	**0.0%**
Not cost-effective	0.0%	0.0%	0.5%	6.6%	1.1%	0.0%
Less costly, less effective	11.8%	10.7%	10.1%	7.9%	9.9%	50.5%
Dominated	0.0%	0.0%	0.7%	4.8%	4.9%	0.0%

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Conflicts of interest

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