

APPENDIX S1: Methodology Systematic Literature Review

Search strategy and study selection

A systematic literature search was conducted in PubMed, Embase, Web of Science and the Cochrane Library (May 2026). This review was prospectively registered in PROSPERO (registration number: 1080922) and in accordance with the PRISMA guidelines. The search strategy was structured around three key concepts: biologics, immune-mediated inflammatory disease (IMID) and pregnancy (see full search strategy in Supplementary File 2). Filters were applied to exclude conference and meeting abstracts. Two reviewers (LB, JvP) independently screened titles, abstracts and subsequently full texts against predefined inclusion and exclusion criteria using the Rayyan web tool. Discrepancies were resolved through discussion or in consultation with a third reviewer (JvdR).

Eligibility criteria

Eligible studies involved patients diagnosed with an IMID who were pregnant, planning pregnancy, or whose partner was exposed to IL-17, IL-12/23 or IL-23 inhibitors within three months before conception or during pregnancy. Furthermore, studies were required to report at least one pregnancy-related or neonatal outcome, such as live birth, miscarriage, congenital malformation, preterm birth or neonatal infection.

Studies were excluded if they lacked data on pregnancy or neonatal outcomes or analysed biologic therapies collectively or in combination with other drugs without specifying the individual agents or classes. In addition, animal or in vitro studies, reviews, conference abstracts and non-English publications were excluded. When multiple publications reported overlapping datasets, the most recent or most comprehensive study was retained.

Data extraction and quality assessment

Extracted information included study characteristics such as author, year of publication, country, study design and sample size. Population characteristics were also collected, including type of IMID, maternal age, disease duration and activity and concomitant medication. Details regarding drug exposure, such as the specific biologic agent, timing of exposure (preconception, first, second, or third trimester) and paternal exposure when available, were also recorded. Reported maternal and pregnancy outcomes included live birth, spontaneous abortion, stillbirth, pregnancy termination, caesarean section, preeclampsia, gestational diabetes, gestational hypertension, premature rupture of membranes (PROM) and infections. Neonatal outcomes included birth defects, small for gestational age (SGA), low birth weight (LWB, <2500g), preterm (<37 weeks) and infections. When data were missing or unclear, corresponding authors were contacted for clarification.

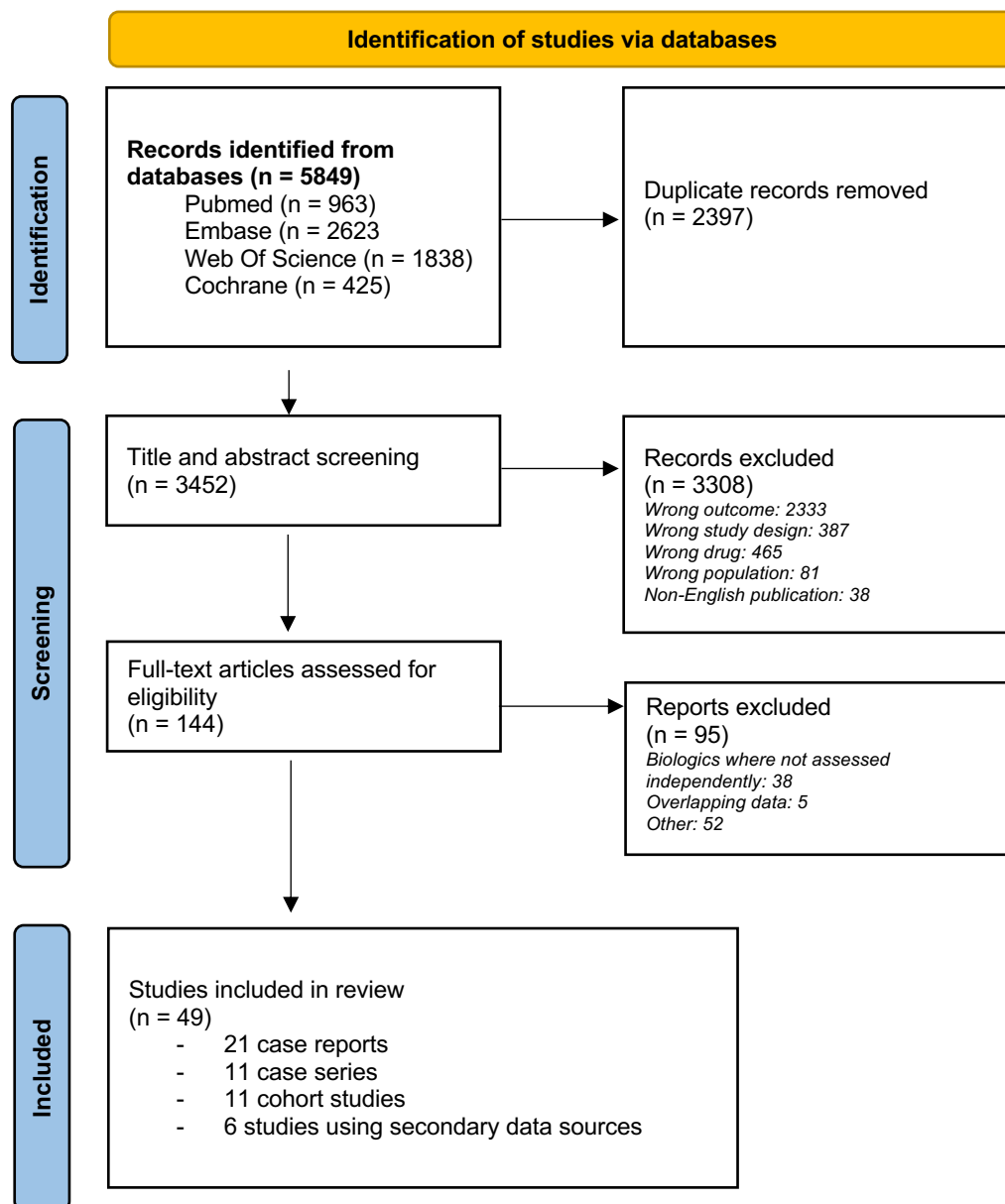
APPENDIX S2: Search strategy

Pubmed	EMBASE	Web of Science	Cochrane Library
"Pregnancy"[Mesh] OR "Pregnant People"[Mesh] OR "Pregnancy Complications"[Mesh] OR "Paternal Exposure"[Mesh] OR "Maternal Exposure"[Mesh] OR Pregnan*[tiab] OR Gestation*[tiab] OR Labor*[tiab] OR Labour*[tiab] OR Child Bearing*[tiab] OR Childbearing*[tiab] OR Mother*[tiab] OR "Expecting Baby"[tiab:~2] OR "Expecting Child"[tiab:~2] OR "Expecting Children"[tiab:~2] OR "Expecting Babies"[tiab:~2] OR Parturition*[tiab] OR Paternal exposure*[tiab] OR maternal exposure*[tiab] OR "Caesarian section*" [tiab] OR C-Section*[tiab] OR Miscarriage*[tiab] OR Abortion*[tiab] OR Abortus*[tiab] OR Fetal*[tiab] OR Fetus*[tiab] OR Stillbirth*[tiab] OR Neonat*[tiab] OR Newborn*[tiab] OR Eclampsia*[tiab] OR Preeclampsia*[tiab] OR HELLP[tiab] OR Premature*[tiab] OR Preterm*[tiab] OR Birth*[tiab] OR Congenital*[tiab] OR Father*[tiab]	maternal exposure/ OR Pregnan*.ti,ab,kf. OR Gestation*.ti,ab,kf. OR Labor*.ti,ab,kf. OR Labour*.ti,ab,kf. OR Child Bearing*.ti,ab,kf. OR Childbearing*.ti,ab,kf. OR Mother*.ti,ab,kf. OR ((Expecting*) adj3 (Baby OR Babies OR Child*)).ti,ab,kf. OR Parturition*.ti,ab,kf. OR Paternal exposure*.ti,ab,kf. OR maternal exposure*.ti,ab,kf. OR "Caesarian section*".ti,ab,kf. OR C-Section*.ti,ab,kf. OR Miscarriage*.ti,ab,kf. OR Abortion*.ti,ab,kf. OR Abortus*.ti,ab,kf. OR Foetal*.ti,ab,kf. OR Fetal*.ti,ab,kf. OR Foetus*.ti,ab,kf. OR Fetus*.ti,ab,kf. OR Stillbirth*.ti,ab,kf. OR Neonat*.ti,ab,kf. OR Newborn*.ti,ab,kf. OR Eclampsia*.ti,ab,kf. OR Preeclampsia*.ti,ab,kf. OR HELLP.ti,ab,kf. OR Premature*.ti,ab,kf. OR Preterm*.ti,ab,kf. OR Birth*.ti,ab,kf. OR Congenital*.ti,ab,kf. OR Father*.ti,ab,kf.	TS=(Pregnan* OR Gestation* OR Labor* OR Labour* OR Child Bearing* OR Childbearing* OR Mother* OR ((Expecting*) NEAR/2 (Baby OR Babies OR Child*)) OR Parturition* OR Paternal exposure* OR maternal exposure* OR "Caesarian section*" OR C-Section* OR Miscarriage* OR Abortion* OR Abortus* OR Foetal* OR Fetal* OR Foetus* OR Fetus* OR Stillbirth* OR Neonat* OR Newborn* OR Eclampsia* OR Preeclampsia* OR HELLP OR Premature* OR Preterm* OR Birth* OR Congenital* OR Father*)	[mh "Pregnancy"] OR [mh "Pregnant People"] OR [mh "Pregnancy Complications"] OR [mh "Paternal Exposure"] OR [mh "Maternal Exposure"] OR OR Pregnan*:ti,ab,kw OR Gestation*:ti,ab,kw OR Labor*:ti,ab,kw OR Labour*:ti,ab,kw OR Child Bearing*:ti,ab,kw OR Childbearing*:ti,ab,kw OR Mother*:ti,ab,kw OR ((Expecting*) NEAR/2 (Baby OR Babies OR Child)):ti,ab,kw OR Parturition*:ti,ab,kw OR (Paternal NEXT exposure*):ti,ab,kw OR (maternal NEXT exposure*):ti,ab,kw OR (Caesarian NEXT section*):ti,ab,kw OR C-Section*:ti,ab,kw OR Miscarriage*:ti,ab,kw OR Abortion*:ti,ab,kw OR Abortus*:ti,ab,kw OR Foetal*:ti,ab,kw OR Fetal*:ti,ab,kw OR Foetus*:ti,ab,kw OR Fetus*:ti,ab,kw OR Stillbirth*:ti,ab,kw OR Neonat*:ti,ab,kw OR Neonat*:ti,ab,kw OR Eclampsia*:ti,ab,kw OR Preeclampsia*:ti,ab,kw OR HELLP:ti,ab,kw OR Premature*:ti,ab,kw OR Preterm*:ti,ab,kw OR Birth*:ti,ab,kw OR Congenital*:ti,ab,kw OR Father*:ti,ab,kw
"Psoriasis"[Mesh] OR "Inflammatory Bowel Diseases"[Mesh] OR "<u>Axial Spondyloarthritis</u>"[Mesh] OR "Hidradenitis Suppurativa"[Mesh] OR Psorias*[tiab] OR Psoriat*[tiab] OR Inflammatory Bowel*[tiab] OR Crohn*[tiab] OR "Ulcerative Colitis"[tiab] OR "<u>Axial Spondyloarthritis</u>"[tiab] OR "Ankylosing Spondylitis"[tiab] OR "Immune mediated inflammatory*" [tiab] OR "Hidradenitis Suppurativa"[tiab] OR "Suppurative Hidradenitis"[tiab]	exp psoriasis/ OR exp inflammatory bowel disease/ OR exp <u>axial spondyloarthritis</u>/ OR exp hidradenitis suppurativa/ OR Psorias*.ti,ab,kf. OR Psoriat*.ti,ab,kf. OR "Inflammatory Bowel*".ti,ab,kf. OR Crohn*.ti,ab,kf. OR "ulcerative colitis".ti,ab,kf. OR "<u>Axial Spondyloarthritis</u>".ti,ab,kf. OR "Ankylosing Spondylitis".ti,ab,kf. OR "Immune mediated inflammatory*".ti,ab,kf. OR "hidradenitis suppurativa".ti,ab,kf. OR "suppurative hidradenitis".ti,ab,kf.	TS=(Psorias* OR Psoriat* OR "inflammatory bowel" OR *crohn* OR "ulcerative colitis" OR "axial spondyloarthritis" OR "ankylosing spondylitis" OR "immune mediated inflammatory disease*" OR "hidradenitis suppurativa" OR "suppurative hidradenitis")	[mh "Psoriasis"] OR [mh "Inflammatory bowel disease"] OR [mh "Ulcerative Colitis"] OR [mh "Crohn"] OR [mh "axial spondylarthritis"] OR [mh "immune mediated inflammatory disease"] OR [mh "hidradenitis suppurativa"] OR OR Psorias*:ti,ab,kw OR Psoriat*:ti,ab,kw OR (Inflammatory NEXT Bowel*):ti,ab,kw OR Crohn*:ti,ab,kw OR (ulcerative NEXT colitis):ti,ab,kw OR (<u>Axial NEXT Spondyloarthritis</u>):ti,ab,kw OR (Ankylosing NEXT Spondylitis*):ti,ab,kw OR (Immune NEXT mediated NEXT inflammatory NEXT disease*):ti,ab,kw OR (hidradenitis NEXT suppurativa):ti,ab,kw OR (suppurative NEXT hidradenitis):ti,ab,kw
"Biological Therapy"[Mesh:NoExp] OR "Biological Products"[Mesh:NoExp] OR "Biosimilar Pharmaceuticals"[Mesh]	biological therapy/ OR biological product/ OR biosimilar agent/ OR	TS=(Biologics OR Biosimilar OR Biologicals OR	[mh ^"Biological Therapy"] OR [mh ^"Biological Products"] OR [mh "Biosimilar Pharmaceuticals"] OR

[illegible]

2439821[tiab] OR LY2439821[tiab] OR BI655066[tiab] OR BI655066[tiab] OR AIN457[tiab] OR AIN 457[tiab] OR SCH-90022[tiab] OR SCH90022[tiab] OR MK-3222[tiab] OR MK3222[tiab] OR CNTO-1275[tiab] OR CNTO1275[tiab]	kyntheum.ti,ab,kf. OR guselkumab.ti,ab,kf. OR tremfya.ti,ab,kf. OR ixekizumab.ti,ab,kf. OR taltz.ti,ab,kf. OR risankizumab.ti,ab,kf. OR skyrizi.ti,ab,kf. OR secukinumab.ti,ab,kf. OR cosentyx.ti,ab,kf. OR tildrakizumab.ti,ab,kf. OR ilumetri.ti,ab,kf. OR ilumya.ti,ab,kf. OR ustekinumab.ti,ab,kf. OR imuldosa.ti,ab,kf. OR pyzchiva.ti,ab,kf. OR stelara.ti,ab,kf. OR steqeyma.ti,ab,kf. OR uzpruvo.ti,ab,kf. OR wezenla.ti,ab,kf. OR hadlima.ti,ab,kf. OR selarsdi.ti,ab,kf. OR otulfi.ti,ab,kf. OR yesintek.ti,ab,kf. OR UCB 4940.ti,ab,kf. OR UCB4940.ti,ab,kf. OR AMG827.ti,ab,kf. OR AMG 827.ti,ab,kf. OR CNTO 1959.ti,ab,kf. OR CNTO1959.ti,ab,kf. OR LY 2439821.ti,ab,kf. OR LY2439821.ti,ab,kf. OR BI 655066.ti,ab,kf. OR BI655066.ti,ab,kf. OR AIN457.ti,ab,kf. OR AIN 457.ti,ab,kf. OR SCH-90022.ti,ab,kf. OR SCH90022.ti,ab,kf. OR MK-3222.ti,ab,kf. OR MK3222.ti,ab,kf. OR CNTO-1275.ti,ab,kf. OR CNTO1275.ti,ab,kf.		pyzchiva.ti,ab,kw OR stelara.ti,ab,kw OR steqeyma.ti,ab,kw OR uzpruvo.ti,ab,kw OR wezenla.ti,ab,kw OR hadlima.ti,ab,kw OR selarsdi.ti,ab,kw OR otulfi.ti,ab,kw OR yesintek.ti,ab,kw OR UCB-4940.ti,ab,kw OR UCB4940.ti,ab,kw OR AMG827.ti,ab,kw OR AMG-827.ti,ab,kw OR CNTO-1959.ti,ab,kw OR CNTO1959.ti,ab,kw OR LY-2439821.ti,ab,kw OR LY2439821.ti,ab,kw OR BI-655066.ti,ab,kw OR BI655066.ti,ab,kw OR AIN457.ti,ab,kw OR (AIN NEXT 457).ti,ab,kw OR SCH-90022.ti,ab,kw OR SCH90022.ti,ab,kw OR MK-3222.ti,ab,kw OR MK3222.ti,ab,kw OR CNTO-1275.ti,ab,kw OR CNTO1275.ti,ab,kw
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APPENDIX S3: PRISMA flow chart for study selection.



APPENDIX S4: Characteristics of included studies

	Study	Area of the world	Disease	Biologic	Size exposed population	Exposure timing*	Comparison group	Data source	Reference (see Supplemental File 5)
<i>Case reports</i>	Alsenaid., 2014	Germany	PsO	UST	1	T1 and T2	NA	NA	1
	Andrulonis., 2012	America	PsO	UST	1	T1, T2 and T3	NA	NA	2
	Chin et al., 2025	Australia	UC	UST	1	T1, T2 and T3	NA	NA	3
	Cortes., 2016	Spain	CD	UST	1	T1, T2 and T3	NA	NA	4
	Fotiadou., 2012	Greece	PsO	UST	1	T1	NA	NA	5
	Galli-Novak., 2015	Germany	CD & PsO	UST	1	T1 and T2	NA	NA	6
	Guo., 2023	China	CD	UST	1	T1, T2 and T3	NA	NA	7
	He et al., 2025**	China	PSO (GPPP)	SEC	1	T3	NA	NA	8
				SEC	1	T2 and T3			
	Huang et al., 2022	China	PsO (GPPP)	IXE	1	T1, T2 and T3	NA	NA	9
	Ito et al., 2023	Japan	CD	UST	1	T1, T2 and T3	NA	NA	10
	Klenske et al., 2019	Germany	CD	UST	1	T1, T2 and T3	NA	NA	11
	Liu et al., 2020	China	PsO (GPPP)	SEC	1	T3	NA	NA	12
	Mugheddu et al., 2019**	Italy	PsO	UST	1	T1	NA	NA	13
			PsO	UST	1	T1			
	Murgiano et al., 2025	Italy	UC	MIR	1	Unknown	NA	NA	14
	Rocha et al., 2015	Brazil	PsO	UST	1	Only preconception	NA	NA	15
	Rowan et al., 2017	Ireland	CD	UST	1	T1, T2 and T3	NA	NA	16
	Saito et al., 2022	Japan	UC	UST	1	T1, T2 and T3	NA	NA	17
	Skejø et al., 2023	Denmark	CD	UST	1	T2 and T3	NA	NA	18
	Tanaka et al., 2024	Japan	UC	UST	1	T1, T2 and T3	NA	NA	19
	Venturin et al., 2017	France	CD	UST	1	T1	NA	NA	20
	Zhang et al., 2025	China	PsO (GPPP)	SEC	1	T2 and T3	NA	NA	21
<i>Case series</i>	Babuna Kobaner et al., 2020	Turkey	PsO and GPPP	UST	2	UST: T1 (n=2)	NA	NA	22
				SEC	1	SEC: T3 (n=1)			
	Boggs et al., 2020	Ireland	PsO and PsA	UST	1	UST: T1, T2, and T3 (n=1)	NA	NA	23
				SEC	2	SEC: T1, T2 and T3 (n=1); T1 (n=1)			
	Echeverria-Garcia et al., 2016	Spain	PsO	UST	1	T1	NA	NA	24
	Keating et al., 2022	Ireland	CD	UST	2	T1, T2 and T3	NA	NA	25
	Lund and Thomsen 2016	Denmark	PsO	UST	3	Only preconception (n=1)	NA	NA	26
						T1 (n=2)			
	Mahadevan and Long, 2024	USA	CD	RIS	3	T1, T2 and T3	NA	NA	27
	Sako et al., 2021	Japan	CD	UST	1	T1 and T2	NA	NA	28
	Sheeran and Nicolopoulos, 2014	Australia	PsO	UST	2	T1	NA	NA	29
	Watson et al., 2019	UK	PsO	UST	10	T1 (n=9)	NA	NA	30
						T2 (n=1)			
	Wolfe et al., 2024	UK	PsO	UST	5	UST: T1(n=2); T1, T2 and T3 (n=3)	NA	NA	31
				GUS	3				

Cohort studies						GUS: T1 (n=2); T3 (n=1)			
	Zhang et al., 2023	China	PsO (GPPP)	SEC	2	T1, T2 and T3	NA	NA	32
	Avni-Biron et al., 2022	Israel	IBD	UST	27	T1 (n=1) T1 and T2 (n=1) T3 (n=25)	Other medication (TNF inhibitors), no medication	Prospective multicenter cohort study	33
	Azzam et al. 2025	Saudi Arabia and Kuwait	IBD	UST	2	Unknown	None	Retrospective assessment of electronic health records (multicenter)	34
	Chugh et al., 2024	USA	IBD	UST	47	Unknown	Other medication (TNF inhibitors), no medication	Ongoing prospective multicenter study (PIANO)	35
	Ernest-Suarez et al., 2025	Canada	IBD	UST	7	T1, T2 and T3	Other medication (TNF inhibitors, vedolizumab)	Retrospective cohort study (single-center)	36
	Julsgaard et al., 2025	Denmark and Netherlands	IBD	UST	78***	T1 and T2 (n=10) T1, T2 and T3 (n=66)	None	Prospective multicenter cohort study (NEXUS)	37
	Kimball et al., 2021	Global	PsO, PsA, axSpA	UST	70	Unknown	Other medication (infliximab, golimumab, “other biologics”, “all biologics”)	Observational multicenter registry (PSOLAR)	38
	Meyer et al., 2025	France	IBD, PsO, PsA	UST	464	T1 (n=292) T2 (n=218) T3 (n=122) Unknown (n=165)***	Other medication (TNF inhibitors)	Retrospective analysis of EPI-MERES registry	39
	Mitrova et al., 2022	Czech	IBD	UST	54	T1 (n=1) T2 (n=5) T3 (n=37) Unknown (n=11)	Other medication (TNF inhibitors)	Prospective multicenter cohort study	40
	Prentice et al., 2025	Australia	IBD	UST	44	Unknown (n=44)	Other medication (vedolizumab)	Prospective multicenter cohort study	41
	Tsur et al., 2026	Israel	IBD	RIS	26	T1, T2, and T3	Other medication (TNF inhibitors, conventional systemic medication)	Prospective multicenter cohort study	42
	Wils et al., 2020	France	IBD	UST	29	Preconception (n=7) T1(n=13) T1, T2 and T3 (n=9)	Other medication (TNF inhibitors)	Retrospective multicenter cohort study (GETAID)	43

Studies using secondary data sources	Abraham et al., 2022	USA	IBD	UST	39	Unknown (n=39)	General population	Secondary analysis clinical trials	44
	Egeberg et al., 2022	Global	PsO, PsA, axSpA	IXE	193 (maternal n=99, paternal n=94)	T1 (n=75) Throughout pregnancy = 2 Unknown (n=22)	None	Eli Lilly Global Safety Database	45
	Haycraft et al., 2020	USA	PsO	TIL	14	T1	None	Secondary analysis clinical trials	46
	Jeong et al., 2025	Global	Unknown	UST SEC BRO IXE BIM GUS TIL RIS	1607 1631 6 195 11 214 18 560	Unknown	Other medication (TNF inhibitors)	VigiBase (global pharmacovigilance database)	47
	Mahadevan et al., 2022	Global	PsO, PsA, CD, UC and other indications	UST	553 (maternal n=420, paternal n=133)	Unknown	General population	Janssen Global Safety Database	48
	Warren et al., 2018	Global	PsO, PsA, AS	SEC	292 (maternal n=238, paternal n=54)	T1 (n=155) Unknown (n=63)	None	Novartis Global Safety Database	49

*T1 = week 1-13, T2 = week 14-27, T3 = week 28-labour

** Same patient, different pregnancy.

*** Number of pregnancies exposed during each trimester was only presented for pregnancies with birth.

Abbreviations:

PsO, psoriasis; CD, Crohn's disease; GPPP, generalized pustular psoriasis of pregnancy; UC, ulcerative colitis; IBD, inflammatory bowel disease; PsA, psoriatic arthritis; axSpA, axial spondyloarthritis; AS, ankylosing spondylitis.

UST, ustekinumab; IXE, ixekizumab; SEC, secukinumab; RIS, risankizumab; GUS, guselkumab; TIL, tildrakizumab; BRO, brodalumab; BIM, bimekizumab.

T1, first trimester; T2, second trimester; T3, third trimester.

TNF, Tumour Necrosis Factor

NA= Not Applicable

APPENDIX S5: Number of reported pregnancy and neonatal outcomes after maternal exposure reported in the included studies.

<i>IL-17 inhibitors</i>												
<i>Total number of reported pregnancies</i>	SECUKINUMAB			IXEKIZUMAB			BIMEKIZUMAB			BRODALUMAB		
	1877			296			11			6		
	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome
<i>Pregnancy Outcomes</i>												
Live births	61	128	7	40	71	2	NA	NA	NA	NA	NA	NA
Spontaneous abortion	123	1759	8	24	267	3	1	11	1	2	6	1
Stillbirth	1	1640	7	0	267	3	0	11	1	0	6	1
Pregnancy termination	39	1759	8	17	267	3	1	11	1	0	6	1
Caesarean section	1	4	3	NA	NA	NA	NA	NA	NA	NA	NA	NA
<i>Neonatal Outcomes</i>												
Birth defects	2	56	2	1	1	1	NA	NA	NA	NA	NA	NA
Small for gestational age	0	5	4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low birth weight	0	7	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Preterm	6	59	4	6	34	2	NA	NA	NA	NA	NA	NA
Infections	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<i>Maternal Outcomes</i>												
Pre-eclampsia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gestational diabetes	8	1631	1	0	196	1	0	11	1	0	6	1
Gestational hypertension	10	1631	1	0	196	1	0	11	1	0	6	1
Premature Rupture of Membranes (PROM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Infections	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA=Not Available

IL-23 inhibitors

	GUSELKUMAB			RISANKIZUMAB			TILDRAKIZUMAB			MIRIKIZUMAB		
<i>Total number of reported pregnancies</i>	217			589			32			1		
Pregnancy Outcomes	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome
Live births	2	3	1	29	29	2	8	14	1	1	1	1
Spontaneous abortion	17	217	2	79	589	3	3	32	2	0	1	1
Stillbirth	0	217	2	1	589	3	0	32	2	0	1	1
Pregnancy termination	2	217	2	7	589	3	4	32	2	0	1	1
Caesarean section	NA	NA	NA	9	29	2	NA	NA	NA	1	1	1
Neonatal Outcomes												
Birth defects	NA	NA	NA	2	26	1	0	8	1	0	1	1
Small for gestational age	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	1	1
Low birth weight	NA	NA	NA	3	29	2	1	6	1	1	1	1
Preterm	NA	NA	NA	2	26	1	1	8	1	1	1	1
Infections	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maternal Outcomes												
Pre-eclampsia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gestational diabetes	3	214	1	4	560	1	0	18	1	NA	NA	NA
Gestational hypertension	0	214	1	4	560	1	0	18	1	NA	NA	NA
Premature Rupture of Membranes (PROM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	1	1
Infections	NA	NA	NA	2	2	2	NA	NA	NA	NA	NA	NA

NA=Not Available

<i>IL-12/23 inhibitors</i>			
<i>Total number of reported pregnancies</i>	USTEKINUMAB		
	2933		
<i>Pregnancy Outcomes</i>	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome
Live births	980	1273	36
Spontaneous abortion	245	2809	36
Stillbirth	5	2809	34
Pregnancy termination	173	2760	34
Caesarean section	314	1049	28
<i>Neonatal Outcomes</i>			
Birth defects	52	681	10
Small for gestational age	50	437	19
Low birth weight	34	623	24
Preterm	86	913	22
Infections	31	193	6
<i>Maternal Outcomes</i>			
Pre-eclampsia	8	188	4
Gestational diabetes	37	1818	9
Gestational hypertension	22	1745	7
Premature Rupture of Membranes (PROM)	6	76	5
Infections	7	78	7

NA=Not Available

APPENDIX S6: Number of reported pregnancy and neonatal outcomes after paternal exposure reported in the included studies.

	USTEKINUMAB			SECUKINUMAB			IXEKIZUMAB		
	133			54			94		
Total number of reported pregnancies									
	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome	Number of reported outcomes	Number of exposures for which the outcome was assessed	Number of articles reporting on the outcome
Pregnancy Outcomes									
Live births	80	87	1	29	34	1	63	75	1
Spontaneous abortion	5	87	1	4	34	1	9	75	1
Stillbirth	0	87	1	0	34	1	0	75	1
Pregnancy termination	2	87	1	1	34	1	3	75	1
Caesarean section	NA	NA	NA	NA	NA	NA	NA	NA	NA
Neonatal Outcomes									
Birth defects	1	80	1	1	29	1	3	63	1
Small for gestational age	NA	NA	NA	NA	NA	NA	NA	NA	NA
Low birth weight	NA	NA	NA	NA	NA	NA	NA	NA	NA
Preterm	1	80	1	1	29	1	7	59	1
Infections	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA=Not Available

APPENDIX S7: References of the included articles

1. Alsenaid A, Prinz JC. Inadvertent pregnancy during ustekinumab therapy in a patient with plaque psoriasis and impetigo herpetiformis. *J Eur Acad Dermatol Venereol*. 2016;30(3):488-90.
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