Supplementary Tables

Rondaan et al.: Efficacy, immunogenicity and safety of vaccination in adult patients with auto-immune inflammatory rheumatic diseases: A systematic literature review for the European League Against Rheumatism evidence-based update of recommendations for vaccination in adult patients with auto-immune inflammatory rheumatic diseases.

Supplementary Table S1. Efficacy, immunogenicity and safety of hepatitis B vaccination in AIIRD patients.

First author + ref.	**Year**	**Study design**	**No. cases**	**Efficacy**	**Immunogenicity**	**Safety**	**Influence IS on eff./imm.**	**LoE**		
								Eff.	*Imm.*	*Saf.*
Intongkam [151]	2018	Cohort	46 RA 47 RA-DC 9 HC	-	Seroprotection in 64% RA vs. 100% in HC (p=0.045)	Tolerated well. Overall stable disease, 1 flare after first vaccination	No	-	2b	4
Franco Salinas [149]	*2009*	*Cohort*	*20 SpA-anti-TNF* *10 SpA-DC*	-	*Reduced in SpA-anti-TNF*	-	*Reduced on anti-TNF*	*NA*		
Kuruma [148]	*2007*	*Cohort*	*28 SLE*	-	*93% seroprotection*	*11% flares*	-	*NA*		
Erkek [150]	*2005*	*Cohort*	*13 Behçet* *15 HC*	-	*No difference*	*Three patients oral aphtae* *Overall stable disease activity* *No SAE*	-	*NA*		
Elkayam [147]	*2002*	*Cohort*	*22 RA* *22 RA-DC*	-	*68% seroprotection*	*No flares*	*No*	*NA*		

Articles that were already included in the 2011 version of this SLR, are depicted in italic.

Abbreviations: ref.: reference; No.: number; IS: immunosuppressives; eff.: efficacy; imm.: immunogenicity; LoE: Level of evidence; Saf.: safety; RA: rheumatoid arthritis; DC: disease control; HC: healthy control; SpA: spondyloarthropathy; TNF: tumor necrosis factor; NA: not applicable; SLE: systemic lupus erythematosus; SAE: serious adverse events.

Supplementary Table S2. Efficacy, immunogenicity and safety of tetanus toxoid vaccination in AIIRD patients.

First author + ref.	**Year**	**Study design**	**No. cases**	**Efficacy**	**Immunogenicity**	**Safety**	**Influence IS on eff./imm.**	**LoE**		
								Eff.	*Imm.*	*Saf.*
Jaeger [51] *Simultaneous tetanus and diphtheria (±pertussis, polio, Hib) vaccination*	2017	Cohort	12 CAPS	-	-	Local AE in 2 (17%) No fever, no SAE	-	-	-	4
Bingham [110] *Simultaneous tetanus toxoid and pneumococcal vaccination*	2015	Cohort	54 RA-TCZ+MTX 27 RA-MTX	-	No difference	Higher incidence of mild/moderate AE in TCZ+MTX	No	-	2b	4
Bingham [88]	*2010*	*Cohort*	*69 RA-RTX* *34 RA-DC*	-	*No difference*	-	*No*	*NA*		
Kashef [156]	*2008*	*Cohort*	*40 SLE* *60 HC*	-	*No difference*	-	*No*	*NA*		
Battafarano [100] Tetanus toxoid, pneumococcal and Hib vaccination	*1998*	*Cohort*	*73 SLE*	-	*90% protection*	-	*Trend lower response on GC and AZA, not specified for tetanus toxoid*	*NA*		
Devey [154]	*1987*	*Cohort*	*24 SLE* *29 RA* *33 HC*	-	*No difference*	-	-	*NA*		
Nies [157]	*1980*	*Cohort*	*9 SLE*	-	*Reduced in SLE*	-	-	*NA*		

			9 HC					
Abe [155]	*1971*	*Cohort*	*20 SLE* *20 HC*	*-*	*No difference*	*-*	*No*	*NA*
Denman [7]	*1970*	*Cohort*	*20 RA* *39 RA-DC*	*-*	*No difference*	*-*	*No*	*NA*

Articles that were already included in the 2011 version of this SLR, are depicted in italic.

Abbreviations: ref.: reference; No.: number; IS: immunosuppressives; eff.: efficacy; imm.: immunogenicity; LoE: Level of evidence; Saf.: safety; Hib: *Haemophilus influenzae* B; CAPS: cryopyrin associated periodic syndrome; (S)AE: serious adverse event(s); RA: rheumatoid arthritis; TCZ: tocilizumab; MTX: methotrexate; RTX: rituximab; DC: disease control; NA; not applicable; SLE: systematic lupus erythematosus; AZA: azathioprine; HC: healthy controls.

Supplementary Table S3. Efficacy, immunogenicity and safety of yellow fever vaccination in AIIRD patients.

First author + ref.	**Year**	**Study design**	**No. cases**	**Efficacy**	**Immunogenicity**	**Safety**	**Influence IS on eff./imm.**	**LoE**		
								Eff.	*Imm.*	*Saf.*
Kernéis [176] *Revaccination in 44% of GC-treated*	2013	Cohort	34 GC-treated: 9 RA 14 chronic infl. dis. 8 RTI 3 other 68 HC	-	Seroprotection in all tested patients (n=20; 9 RA, 8 chronic infl. dis., 3 UTI)	More moderate/severe local reactions in GC-treated (12 versus 2%)	-	-	4	4
Wieten [174]	2016	Case series	4 RA 2 SSc 3 SpA 2 IBD 1 psoriasis 1 MG 1 liver Tx 1 PG 30 HC	-	No difference in humoral and cellular immunity measures	No reports of fever following vaccination	-	-	4	4
Oliveira [175] *Only revaccination*	2015	Case series	23 RA 5 SLE 2 SSc 1 AS	-	Seropositivity in 87% 2 years after revaccination	Mild AE in 4	-	-	4	4
Scheinberg [177] *Only revaccination*	2010	Case series	17 RA anti-TNF 15 HC	-	Trend toward lower antibody response in patients. Negative serology in 1 patient and 1 HC	No AE reported, symptoms attributable to vaccination	-	-	4	4

Abbreviations: ref.: reference; No.: number; IS: immunosuppressives; eff.: efficacy; imm.: immunogenicity; LoE: Level of evidence; Saf.: safety; IS: immunosuppressives, LoE: level of evidence, Eff.: efficacy, Imm.: immunogenicity, Saf.: safety, GC: glucocorticoid; RA: rheumatoid arthritis, SSc: systemic sclerosis, inf.: inflammatory; dis.: disease; RTI: upper respiratory tract infection; HC: healthy control; SSc: systemic sclerosis; SpA: spondyloarthropathy, IBD: inflammatory bowel disease, MG: myasthenia gravis, Tx: transplantation, PG: pyoderma gangrenosum, AS: ankylosing spondylitis, (S)AE: (serious) adverse event, TNF: tumor necrosis factor.

Supplementary Table S4. Efficacy, immunogenicity and safety of human papillomavirus (HPV) vaccination in AIIRD patients.

First author + ref.	**Year**	**Study design**	**No. cases**	**Efficacy**	**Immunogenicity**	**Safety**	**Influence IS on eff./imm.**	**LoE**		
								Eff.	*Imm.*	*Saf.*
Dhar [183] and [184] *qHPV*	2017 2018	Cohort	34 SLE	-	100% seroconcversion for HPV16 and HPV18, both in seropositive and seronegative SLE	No SLE flares	-	-	2b	4
Mok [185] and [182] *qHPV*	2013 2018	Cohort	50 SLE vacc.: - 35 low GC - 24 MMF - 2 CsA - 5 TAC 50 SLE DC 50 HC	-	Seroconversion similar in SLE and HC After 5 yrs lower GMT for HPV 16 in SLE	AE in SLE similar as in HC Flares similar in vaccinated and control SLE	Lower GMT and seroconversion while on MMF and GC	-	2b	4
Esposito [181] *bHPV*	2014	Cohort	21 JIA 21 HC	-	100% seroconversion in JIA and HC Lower GMT HPV16 in JIA	AE in JIA similar as in HC No increase in JADAS-27	-	-	2b	4
Soybilgic [186] *qHPV*	2013	Cohort	27 jSLE	-	All but 1 patient seropositive for 4 HPV types	2 flares No increase in SLEDAI	-	-	4	4

Abbreviations: ref.: reference; No.: number; IS: immunosuppressives; eff.: efficacy; imm.: immunogenicity; LoE: Level of evidence; Saf.: safety; IS: immunosuppressives, LoE: level of evidence, Eff.: efficacy, Imm.: immunogenicity, Saf.: safety; qHPV: quadrivalent HPV vaccine; bHPV: bivalent HPV vaccine; (j)SLE: (juvenile) systemic lupus erythematosus; vacc.: vaccinated; GC: glucocorticoid; MMF: mycophenolate mofetil; CsA: cyclosporin A; TAC: tacrolimus; DC: disease control; HC: healthy control; GMT: geometric mean titre; AE: adverse evnts; JIA: juvenile idiopathic arthritis; JADAS-27: 27-joint Juvenile Arthritis Disease Activity Score; SLEDAI: SLE Disease Activity Index.

Supplementary Table S5. Efficacy, immunogenicity and safety of tick-borne encephalitis vaccination in AIIRD patients.

First author + ref.	**Year**	**Study design**	**No. cases**	**Efficacy**	**Immunogenicity**	**Safety**	**Influence IS on eff./imm.**	**LoE**		
								Eff.	*Imm.*	*Saf.*
Hertzell [195]	2016	Cohort	65 RA 1 AS 56 HC	-	Lower in RA. Seroprotection in 39% RA vs. 79% HC	No SAE	Possibly reduced in MTX+anti-TNF	-	2b	4

Abbreviations: ref.: reference; No.: number; IS: immunosuppressives; eff.: efficacy; imm.: immunogenicity; LoE: Level of evidence; Saf.: safety; IS: immunosuppressives, LoE: level of evidence, Eff.: efficacy, Imm.: immunogenicity, Saf.: safety; RA: rheumatoid arthritis; AS: ankylosing spondylitis; HC: healthy control; SAE: serious adverse event; MTX: methotrexate; TNF: tumor necrosis factor.