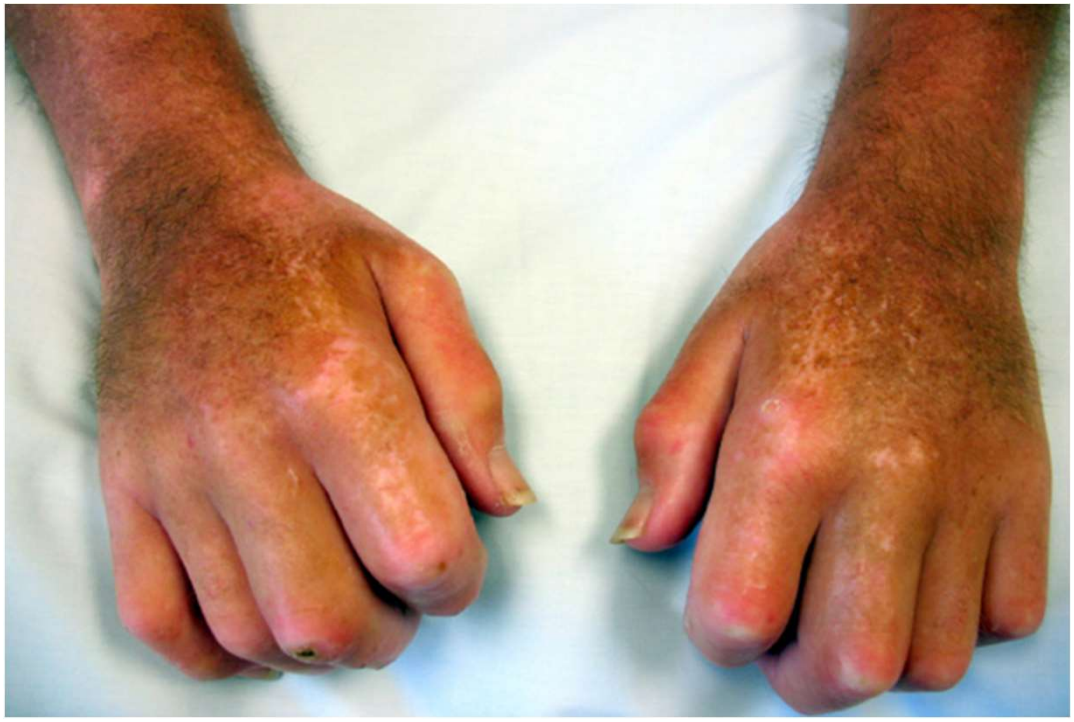
Groninger Symposium Systeemziekten

Nieuwe behandelingen Systemische Sclerose

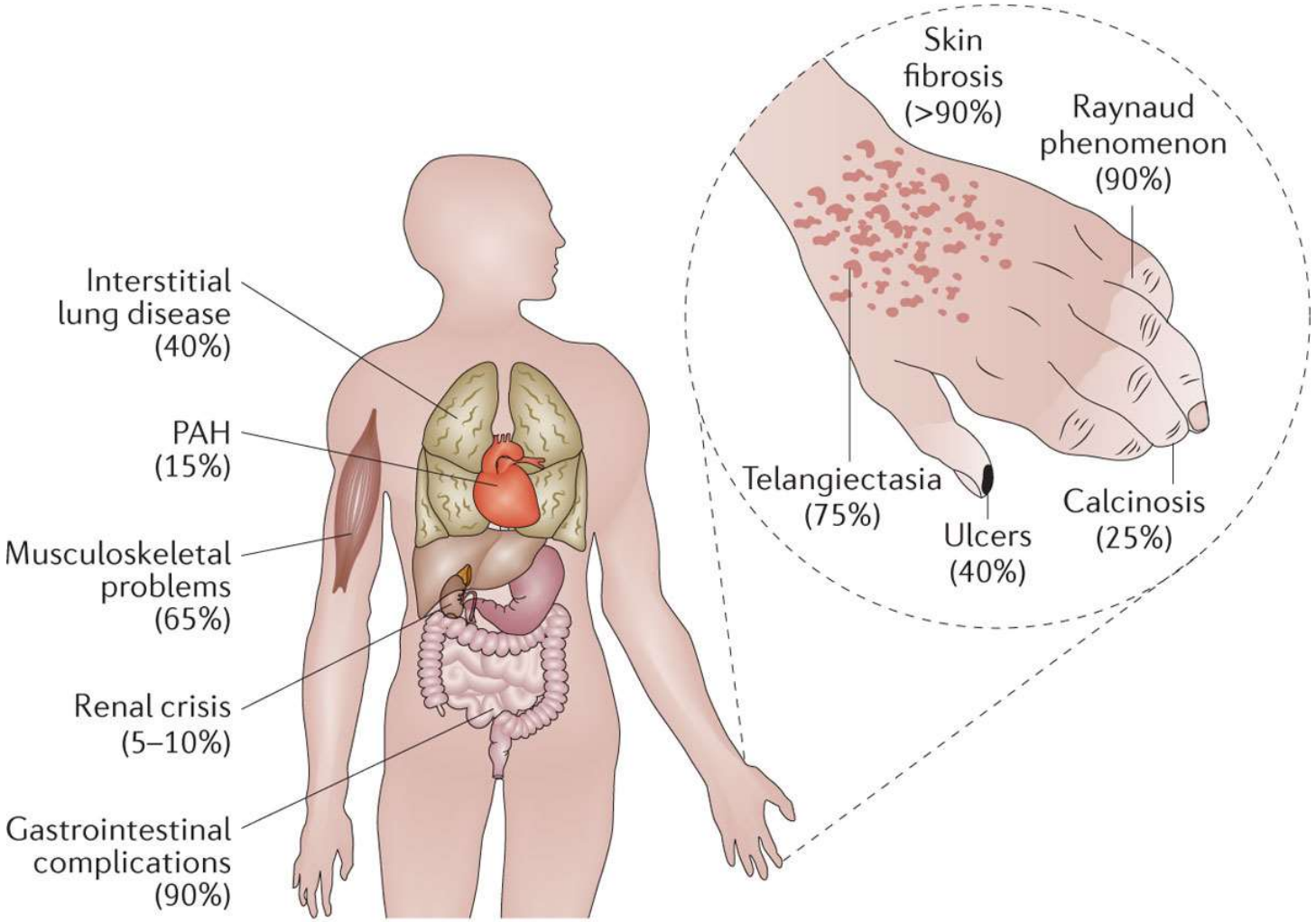


Alja Stel

Disclosure slide

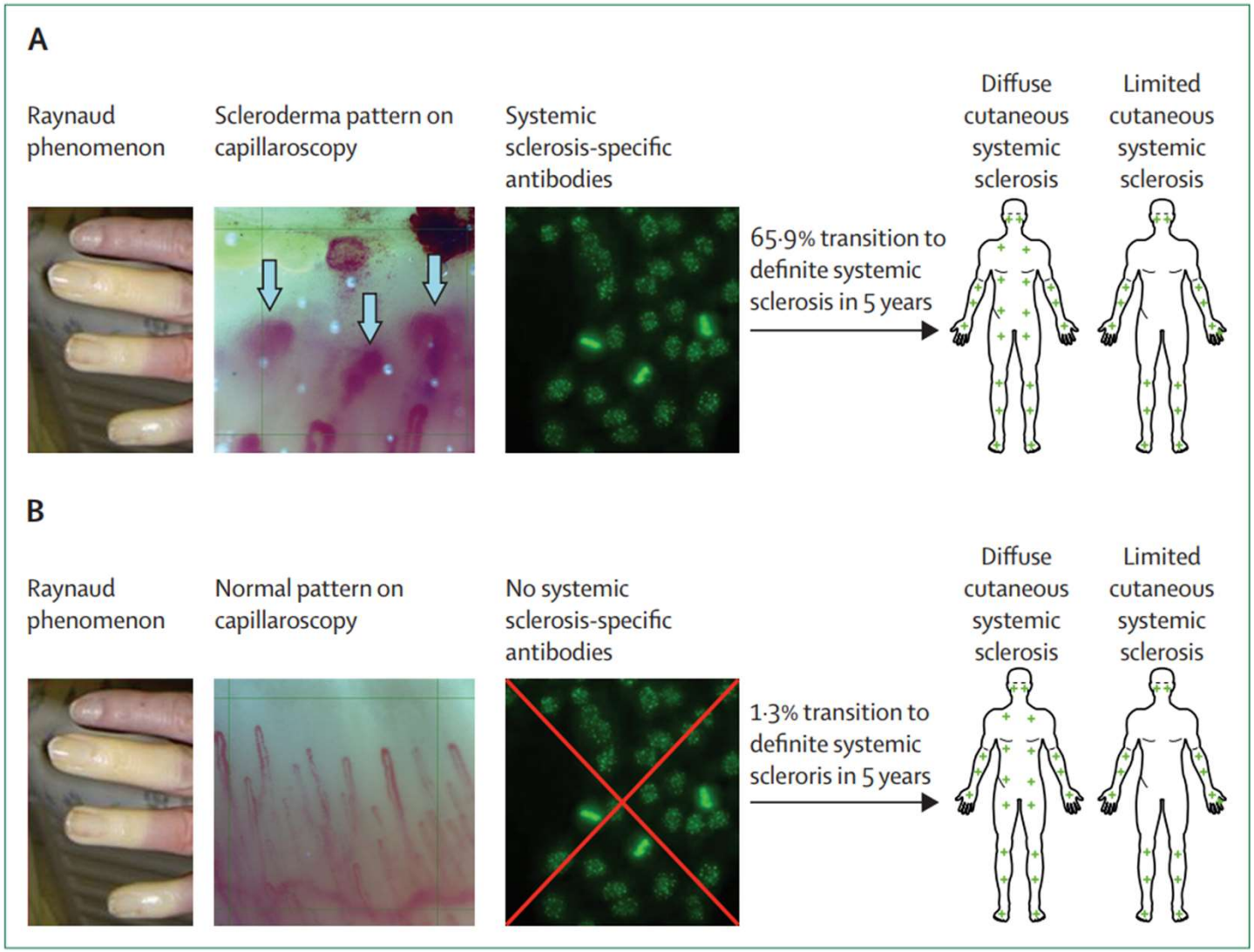
(potentiële) belangenverstrengeling	Geen of zie hieronder
Voor bijeenkomst mogelijk relevante relaties met bedrijven	Bedrijven:
• Sponsoring of onderzoeksgeld • Honorarium of andere (financiële) vergoeding • Aandeelhouder • Andere relatie, namelijk …	• - • - • - • -

Systemische Sclerose



Varga, J. *et al.* (2015) Systemic sclerosis
Nat. Rev. Dis. Primers doi:10.1038/nrdp.2015.2

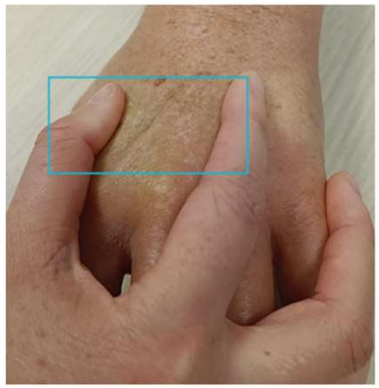
Kenmerken van (vroege) Systemische Sclerose



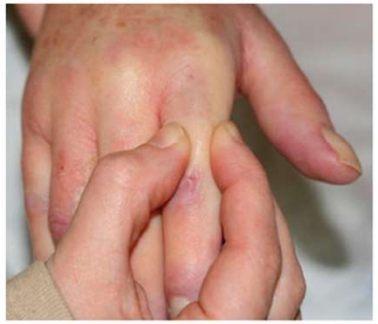
Volkmann et al, Lancet 2023; 401: 304-18

ACR/EULAR criteria Systemische Sclerose

Skin thickening proximal to MCPs



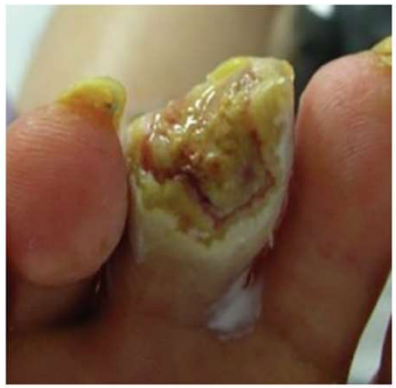
Sclerodactyly of the fingers (distal to the MCPs but proximal to the PIPs)



Items	Sub-items	Score
Skin thickening of the fingers of both hands extending proximal to the metacarpophalangeal joints		9
(Sufficient criterion)		
Skin thickening of the fingers (Only count the highest score)	Puffy fingers	2 ▲
	Sclerodactyly of the fingers (distal to MCP but proximal to the PIPs)	4
Fingertip lesions (Only count the highest score)	Digital tip ulcers	2
	Fingertip pitting scars	3
Telangiectasia		2
Abnormal nailfold capillaries		2 ▲◆
Pulmonary arterial hypertension, interstitial lung disease*, or both	Pulmonary arterial hypertension	2
	Interstitial lung disease	
Raynaud's phenomenon		3 ▲◆
Scleroderma-related antibodies† (Any anti-centromere or anti-topoisomerase 1)	Anti-centromere	3 ▲◆
	Anti-topoisomerase 1	
Anti-Scl70 or anti-RNA polymerase 3	Anti-RNA polymerase 3	

▲ VEDOSS criteria[10] for very early diagnosis of systemic sclerosis
◆ 2001 LeRoy and Medsger criteria[14] for very early systemic sclerosis

Digital ulcers



Fingertip pitting scars

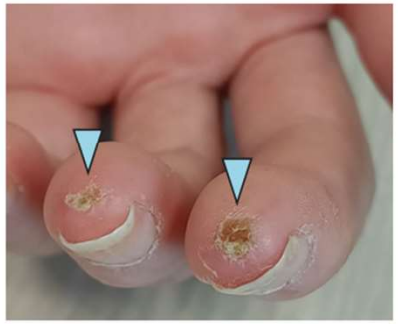
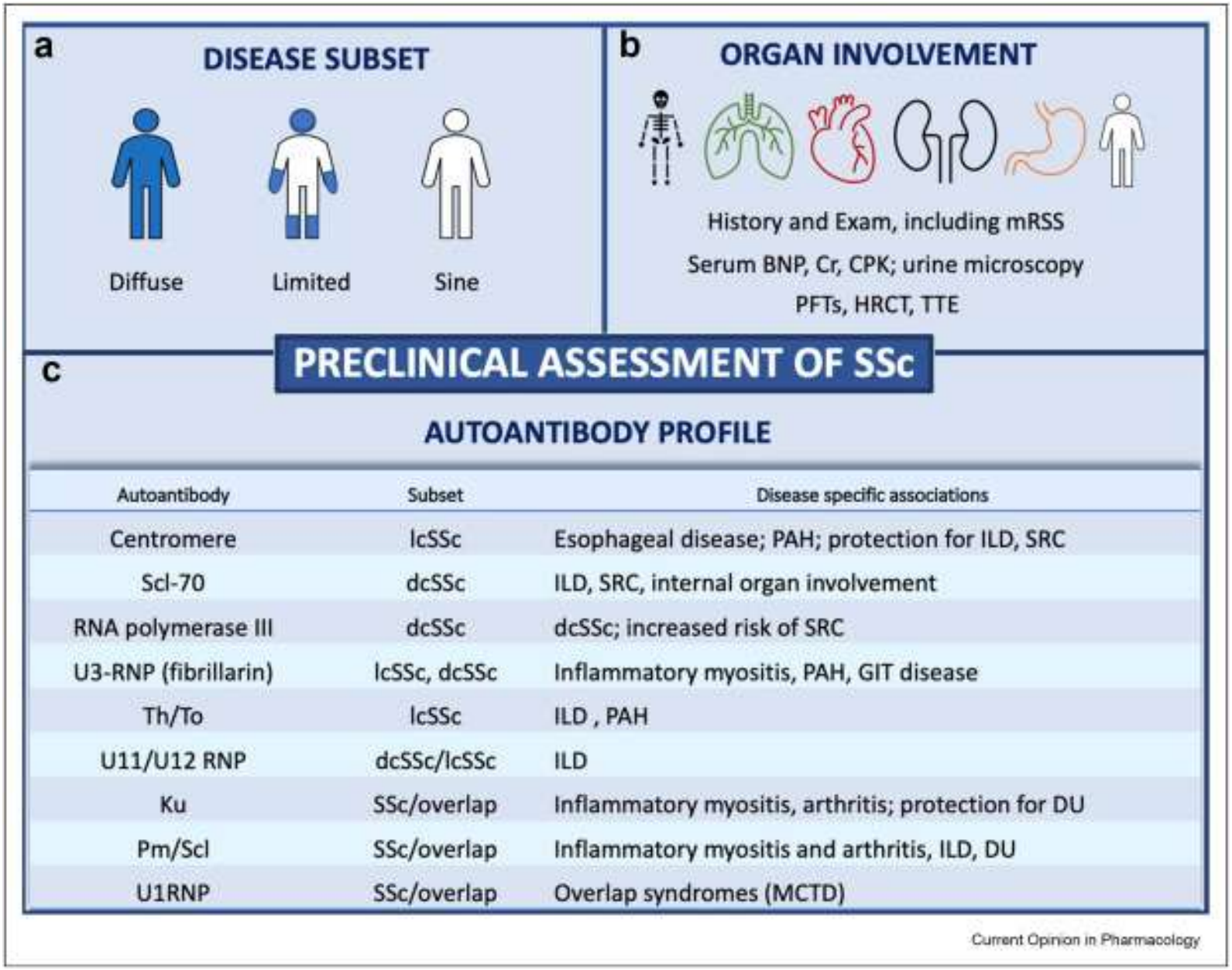


Figure 2: **The 2013 American College of Rheumatology and European Alliance of Associations for Rheumatology Classification Criteria for systemic sclerosis**
A total score of 9 or higher is sufficient to classify a patient as having definite systemic sclerosis, in the absence of other causes for the individual criterion.[18] These criteria were developed for research purposes and do not represent diagnostic criteria. *Maximum score of 2. †Maximum score of 3. MCP=metacarpophalangeal joint. PIP=proximal interphalangeal joint. VEDOSS=very early diagnosis of systemic sclerosis.

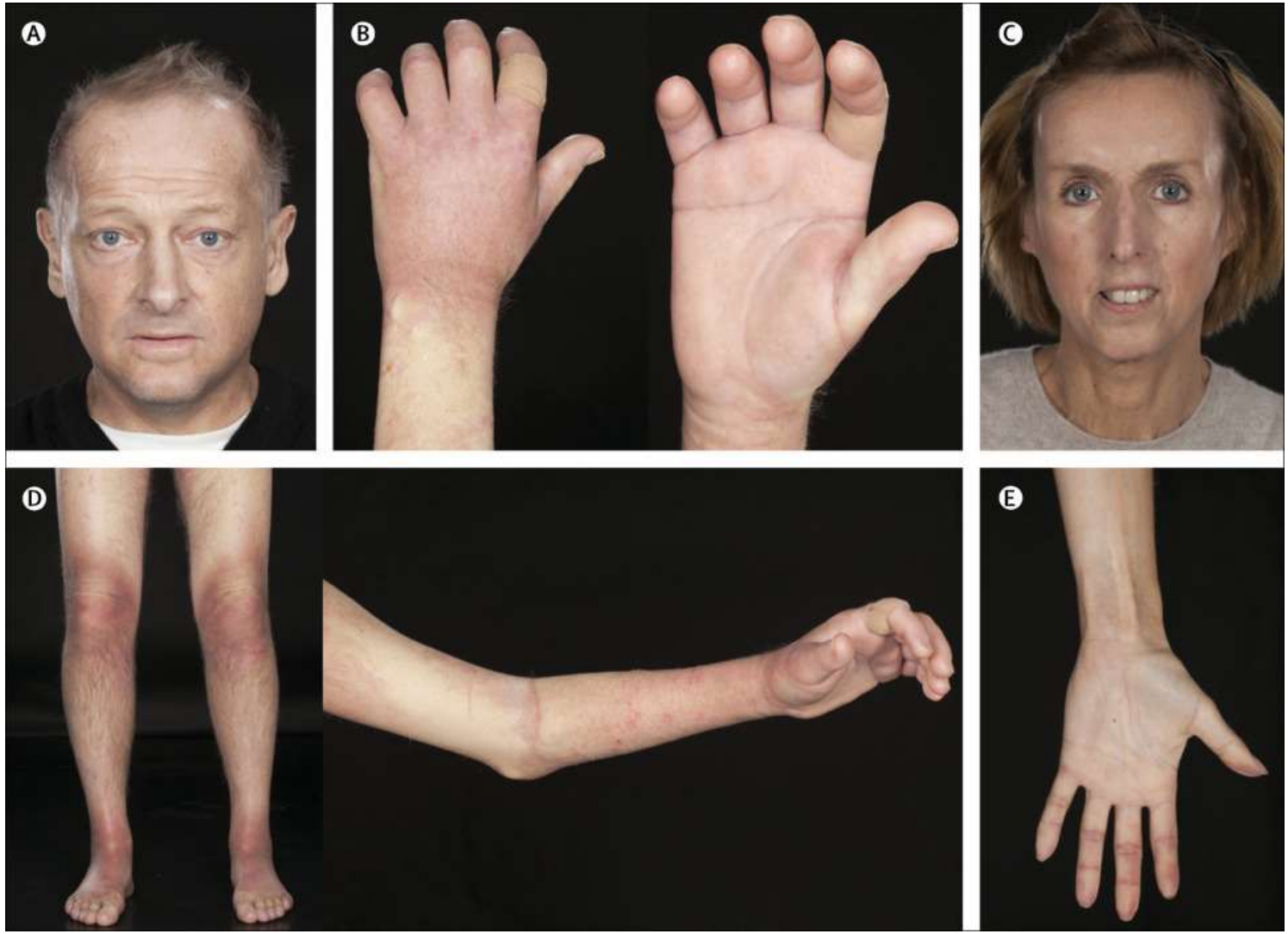
Volkmann et al, Lancet 2023; 401: 304-18



Autoantibody	Subset	Disease specific associations
Centromere	lcSSc	Esophageal disease; PAH; protection for ILD, SRC
Scl-70	dcSSc	ILD, SRC, internal organ involvement
RNA polymerase III	dcSSc	dcSSc; increased risk of SRC
U3-RNP (fibrillarin)	lcSSc, dcSSc	Inflammatory myositis, PAH, GIT disease
Th/To	lcSSc	ILD , PAH
U11/U12 RNP	dcSSc/lcSSc	ILD
Ku	SSc/overlap	Inflammatory myositis, arthritis; protection for DU
Pm/Scl	SSc/overlap	Inflammatory myositis and arthritis, ILD, DU
U1RNP	SSc/overlap	Overlap syndromes (MCTD)

Current Opinion in Pharmacology, Volkmann, 2022

Huid betrokkenheid

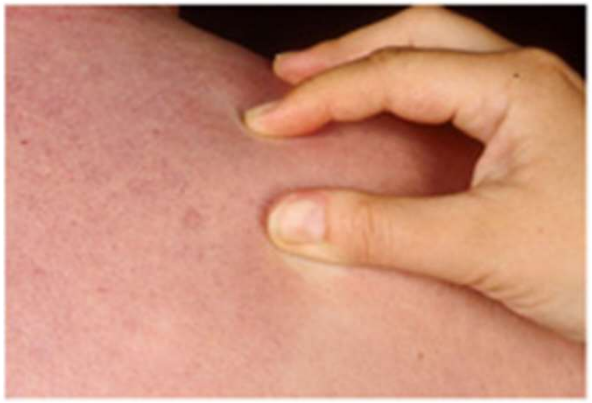


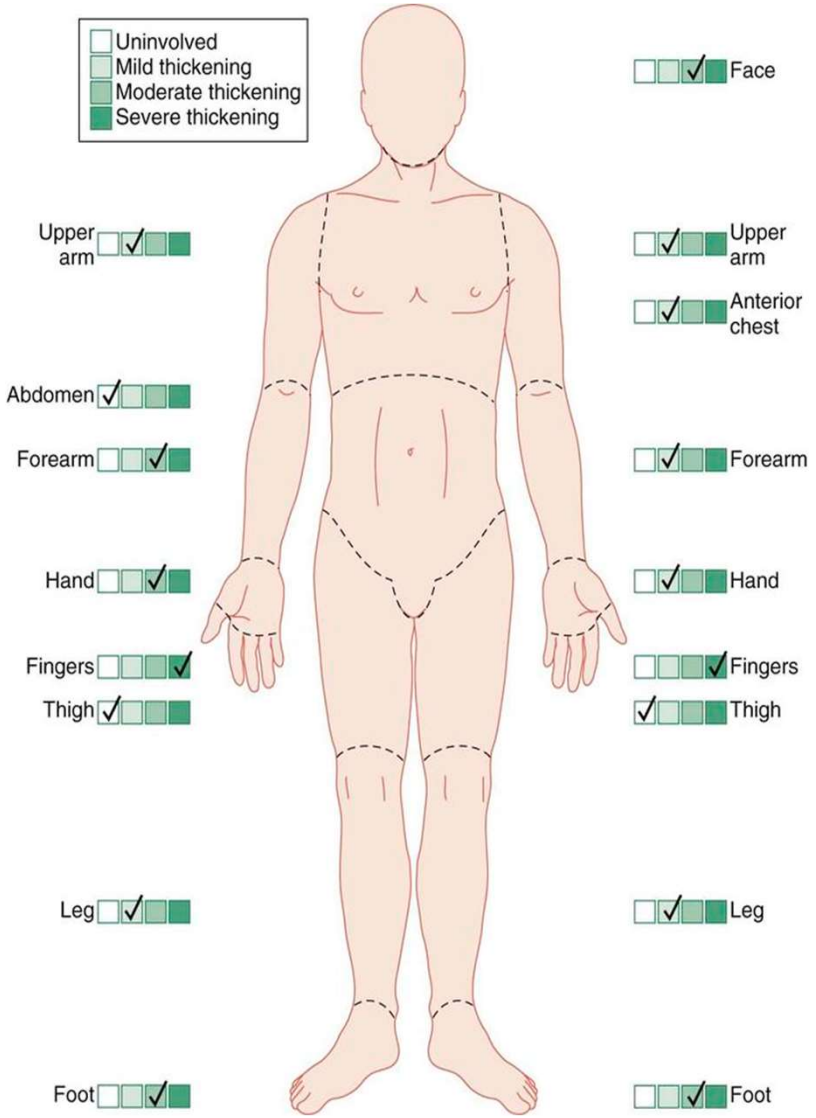
Lancet, Denton, 2017

Huid betrokkenheid

Modified Rodnan Skin Score mRSS

- **17 locaties (0-3)**
- **maximale score 51**
- **significante progressie > 10 in 12 maand**



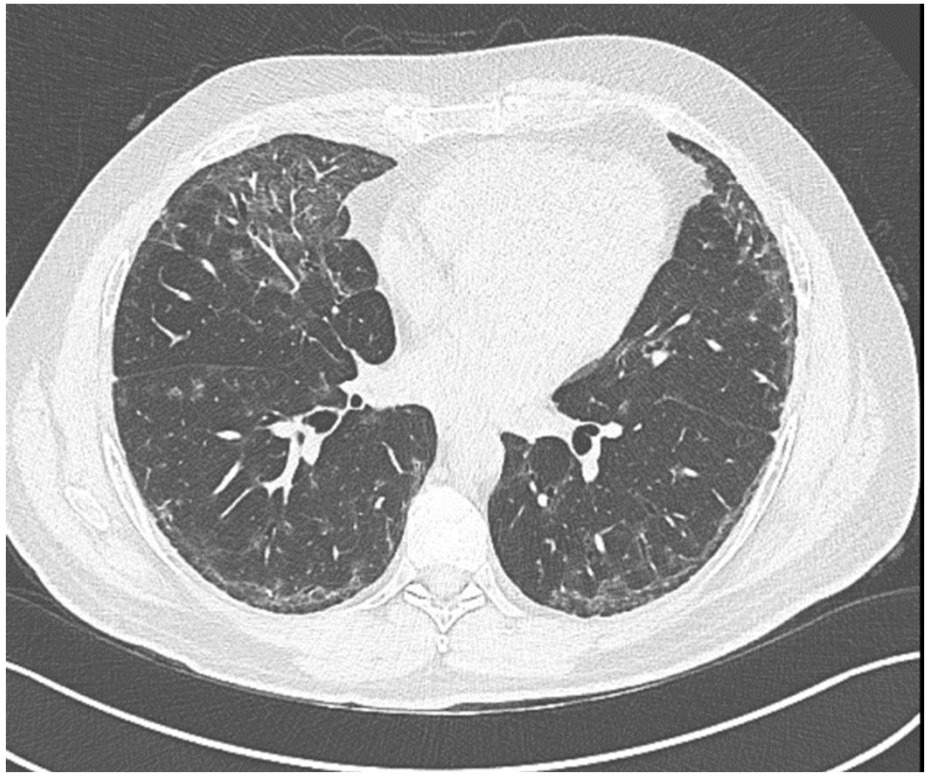


Pulmonale betrokkenheid

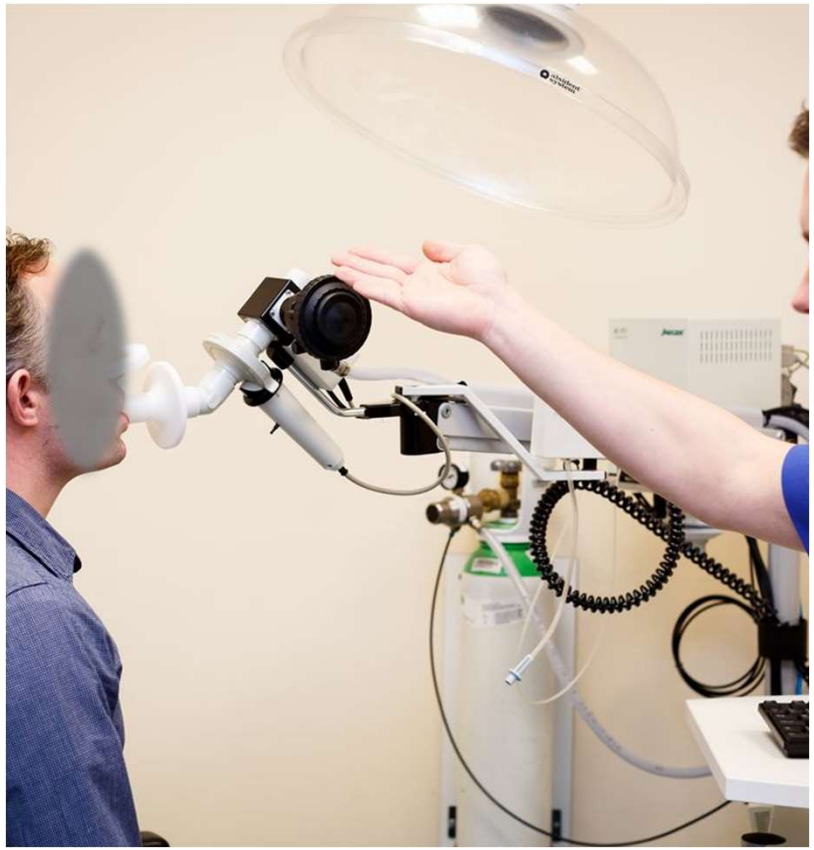
ILD in SSc:
prevalentie tot 30%
10-jaars mortaliteit tot 40%.

Risico op ontwikkeling ILD is het hoogst in de eerste 5 jaar

NSIP meest voorkomend



Pulmonale betrokkenheid



Diagnostiek:

Longfunctie met spirometrie en diffusie + op indicatie HR-CT

1. FVC < 70%
2. DLCO < 80%
3. Daling van DLCO>15% in periode 6-12 maand
4. Daling FVC>10% in periode 6-12 maand

5. Bij verdenking PAH echo cor

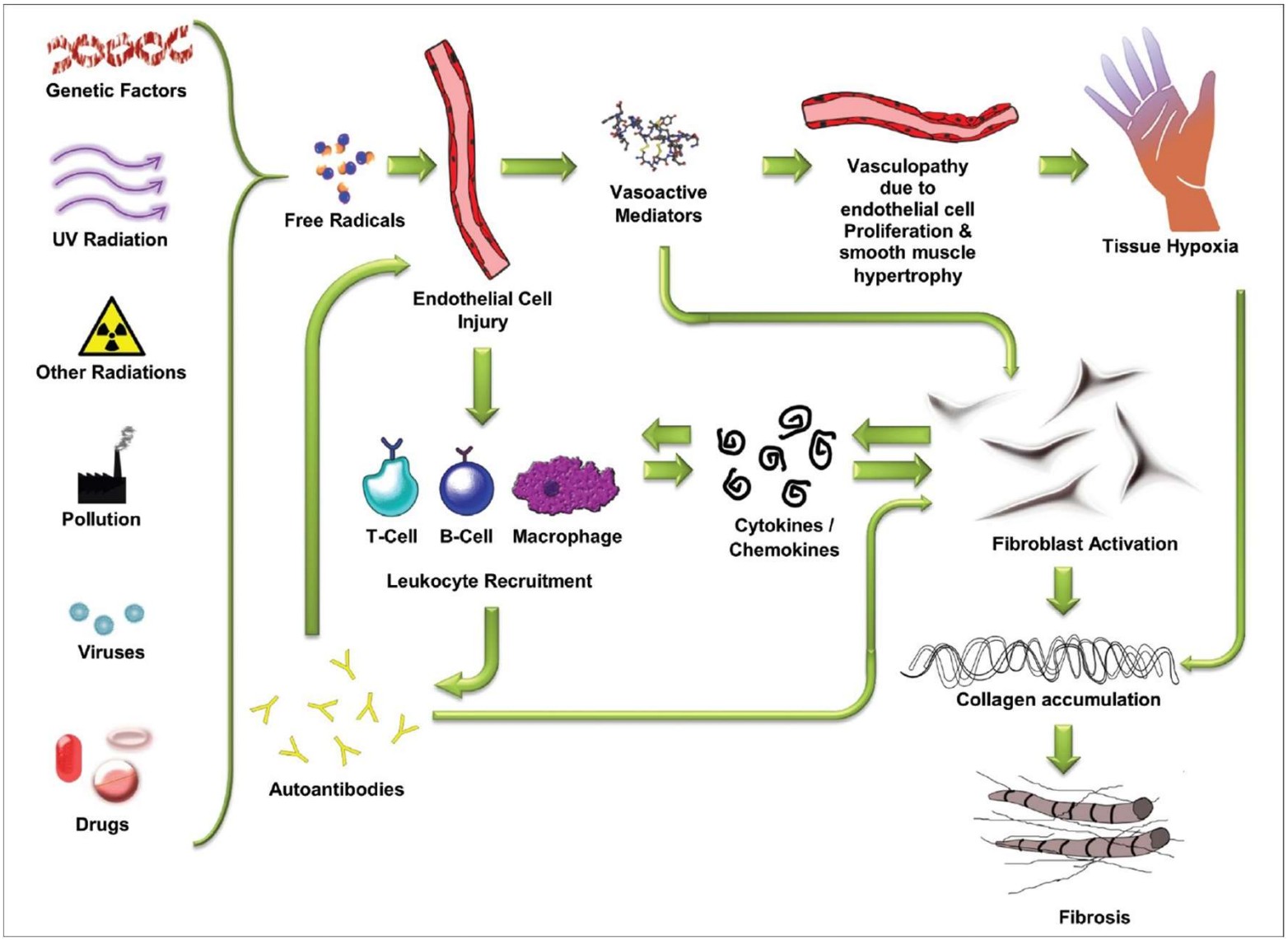
Prognose

Van belang om snel progressieve SSc met verhoogd risico op ernstige orgaancomplicaties vroeg te identificeren.

Patiënten worden gedefinieerd als hoog risico patiënten wanneer één of meer van de volgende factoren aanwezig zijn:

- dcSSc de eerste 4 jaar
- mRSS >15
- anti topoisomerase 1 positiviteit (anti Scl70) / RNA polymerase III
- patiënten met snelle huidprogressie (>10 punten ten opzichte van baseline binnen een periode van 1 jaar of eerder)
- de aanwezigheid van tendon friction rubs
- >10% gewichtsdaling in 1 jaar

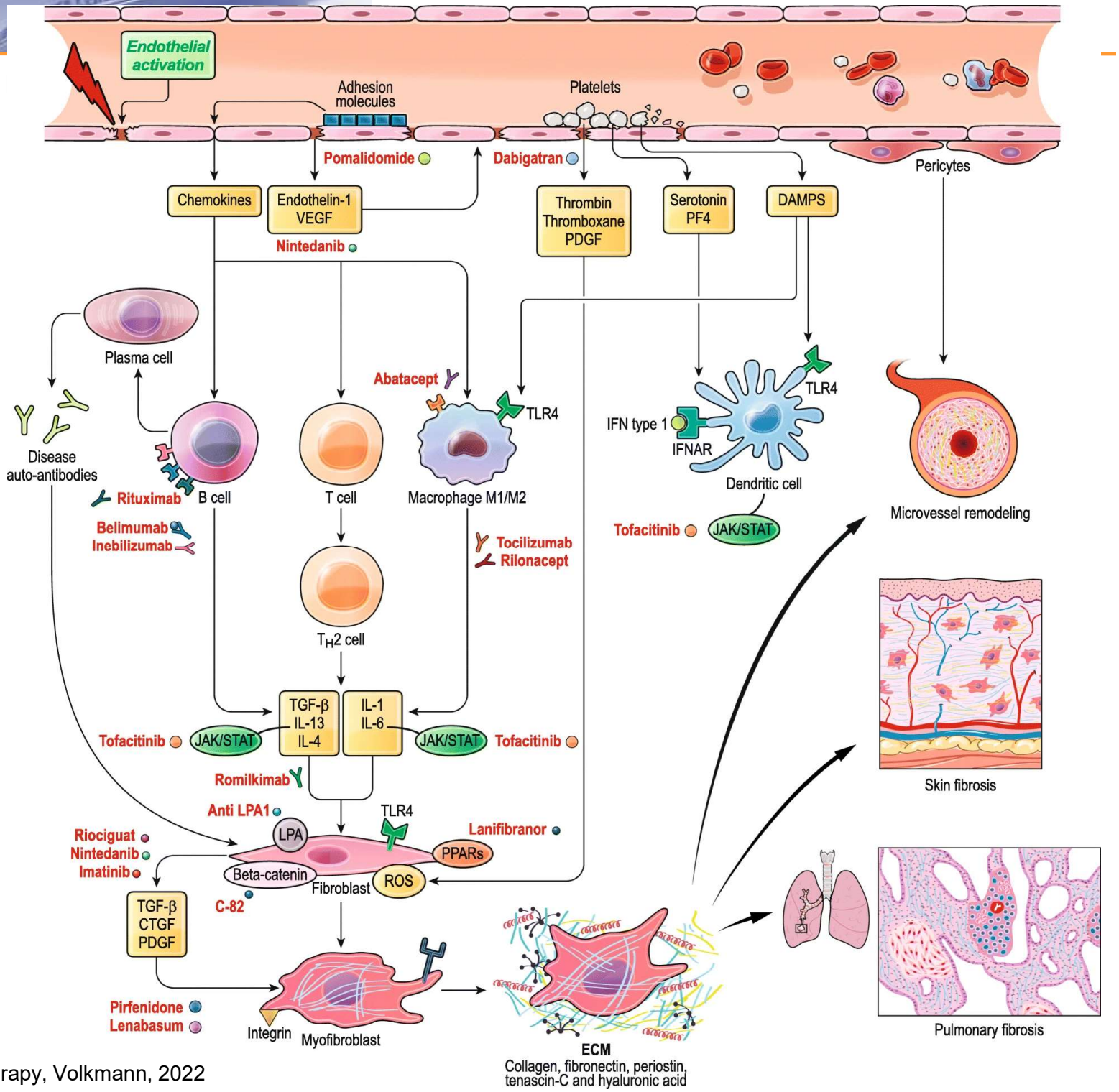
Pathofysiologie Systemische Sclerose



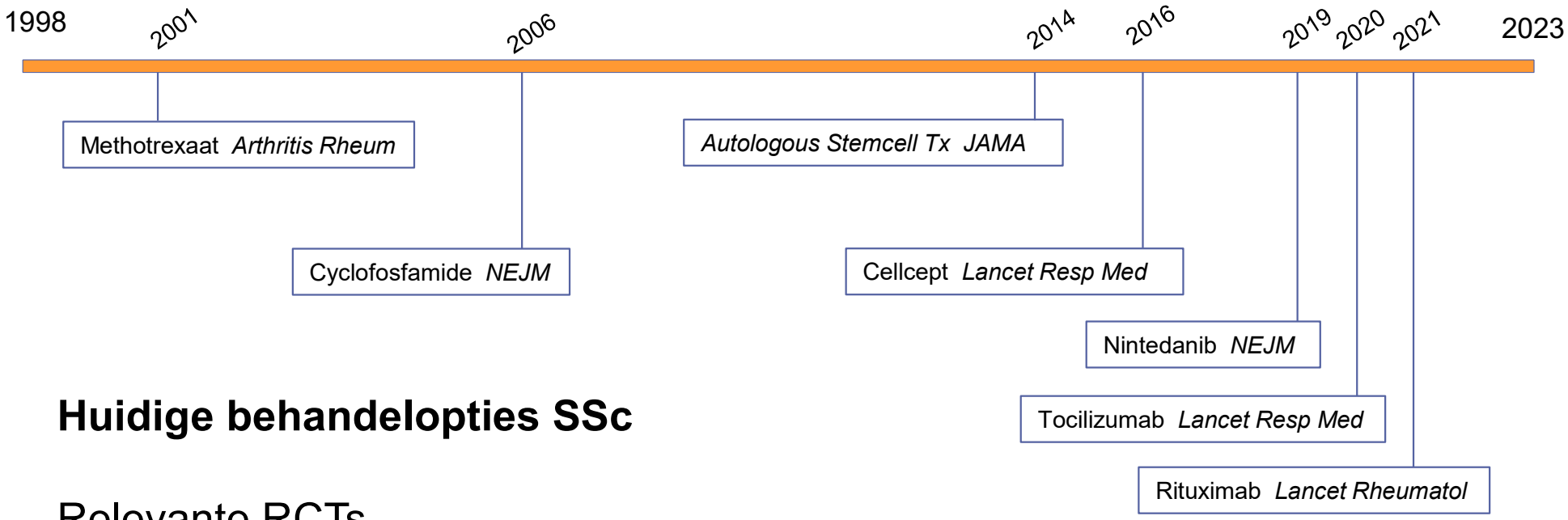
Vishalakshi Viswanath et al 2013 Ind J of Dermatology

Pathogenese Systemische Sclerose

Meest relevante celtypes, cytokines en pathways gecombineerd met potentiele targets in klinische trials.



Arthritis Research & Therapy, Volkmann, 2022

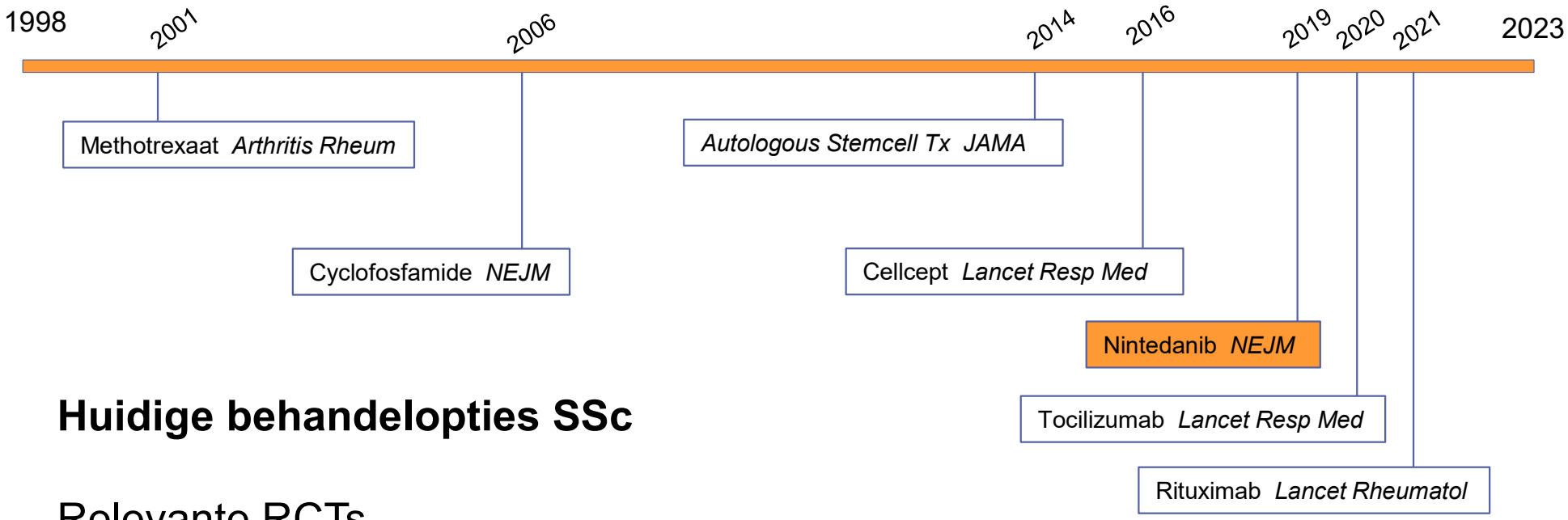


Huidige behandelopties SSc

Relevante RCTs

Significante verbetering huid score (mRSS) en longfunctie
- Cyclophosphamide (NEJM 2006)
- Mycophenolaat Mofetil (Cellcept) (Lancet Resp Med 2016)
- Autologous stem cell transplantation (ASCT) (JAMA 2014)

Geen significant effect op huid (mRSS) maar wel minder achteruitgang in longfunctie (FVC)
- Tocilizumab (IL6 inhibitor)
- Nintedanib (tyrosine kinase and fibroblast growth factor inhibitor)



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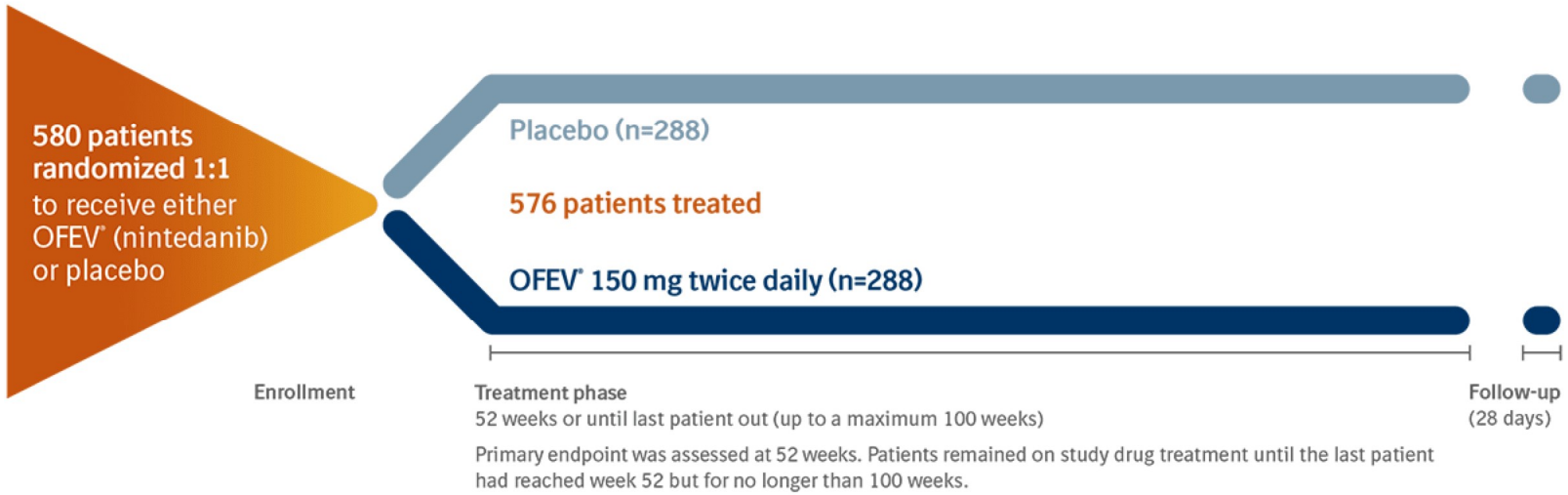
N Engl J Med 2019

Nintedanib for Systemic Sclerosis–Associated Interstitial Lung Disease

Oliver Distler, M.D., Kristin B. Highland, M.D., Martina Gahlemann, M.D., Arata Azuma, M.D., Aryeh Fischer, M.D., Maureen D. Mayes, M.D., Ganesh Raghu, M.D., Wiebke Sauter, Ph.D., Mannaig Girard, M.Sc., Margarida Alves, M.D., Emmanuelle Clerisme-Beaty, M.D., Susanne Stowasser, M.D., Kay Tetzlaff, M.D., Masataka Kuwana, M.D., and Toby M. Maher, M.D., for the SENSCIS Trial Investigators*



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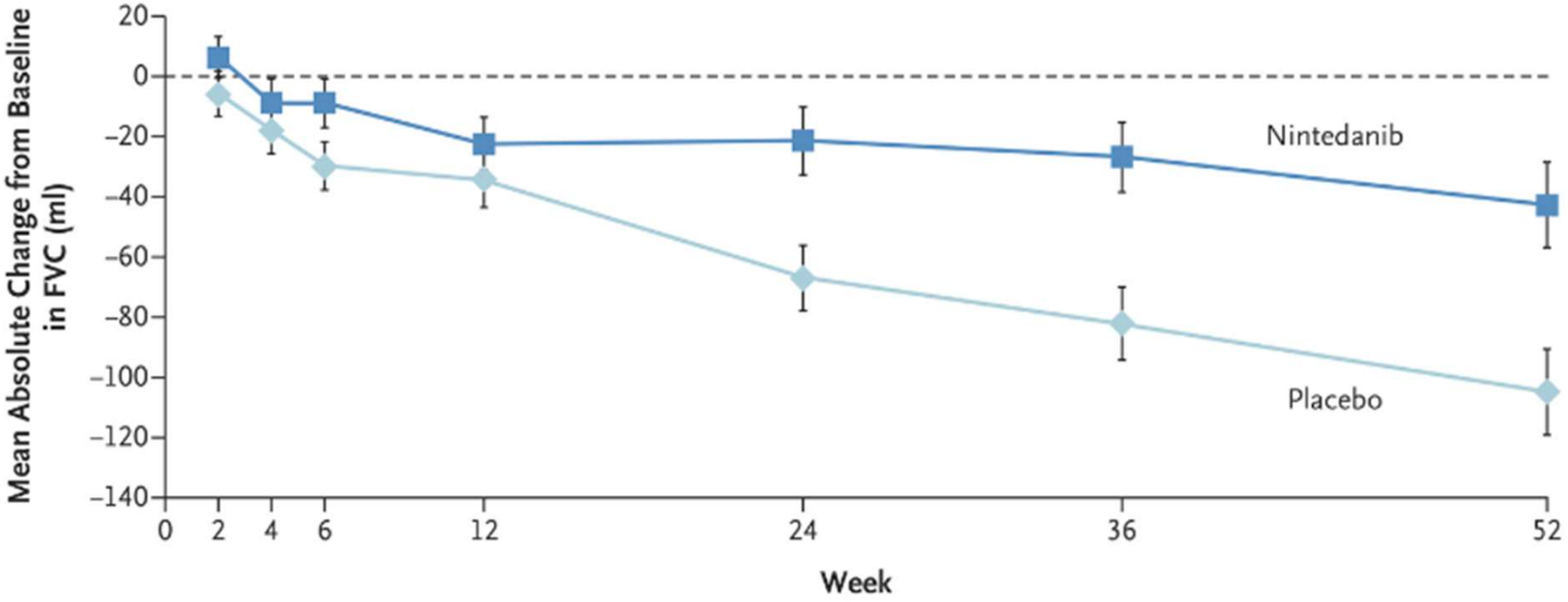
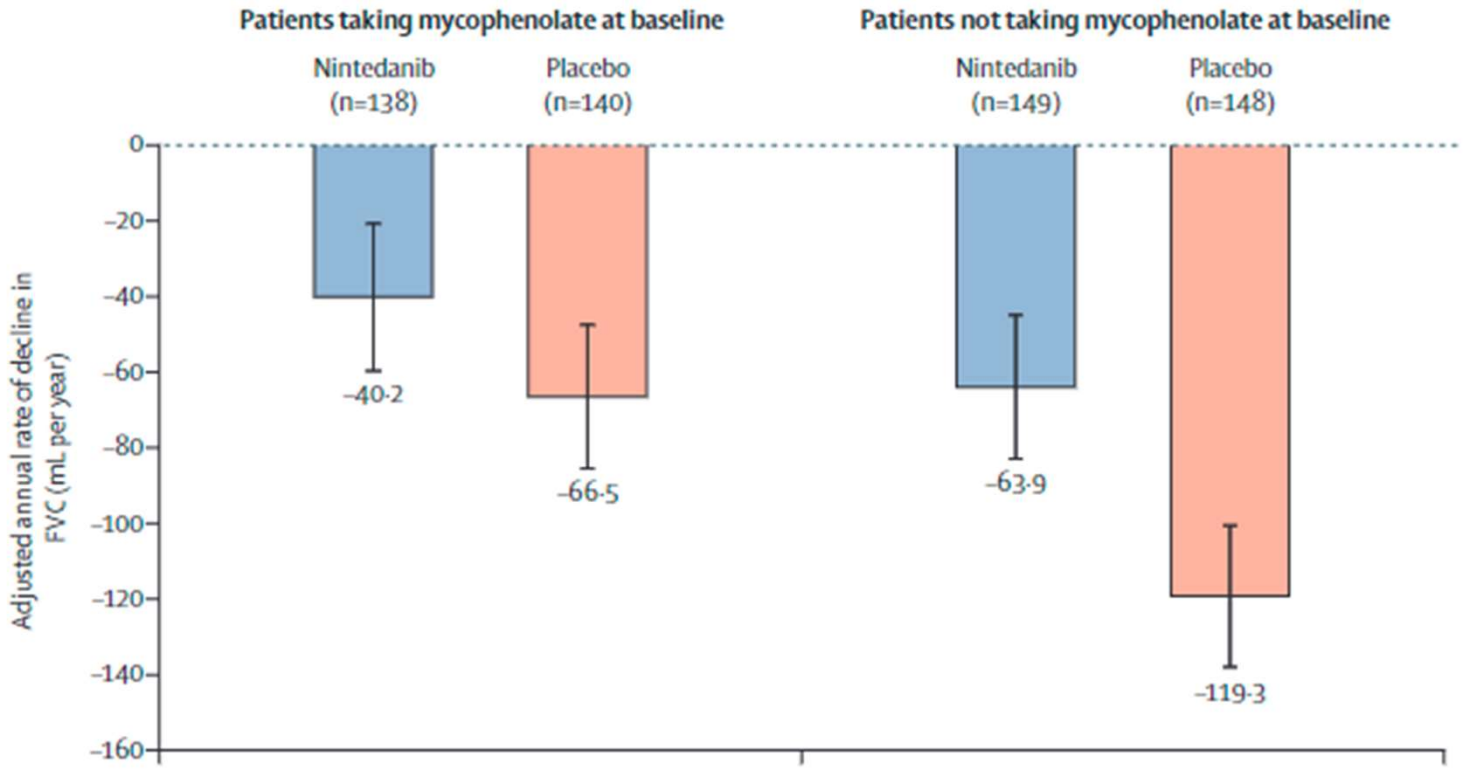


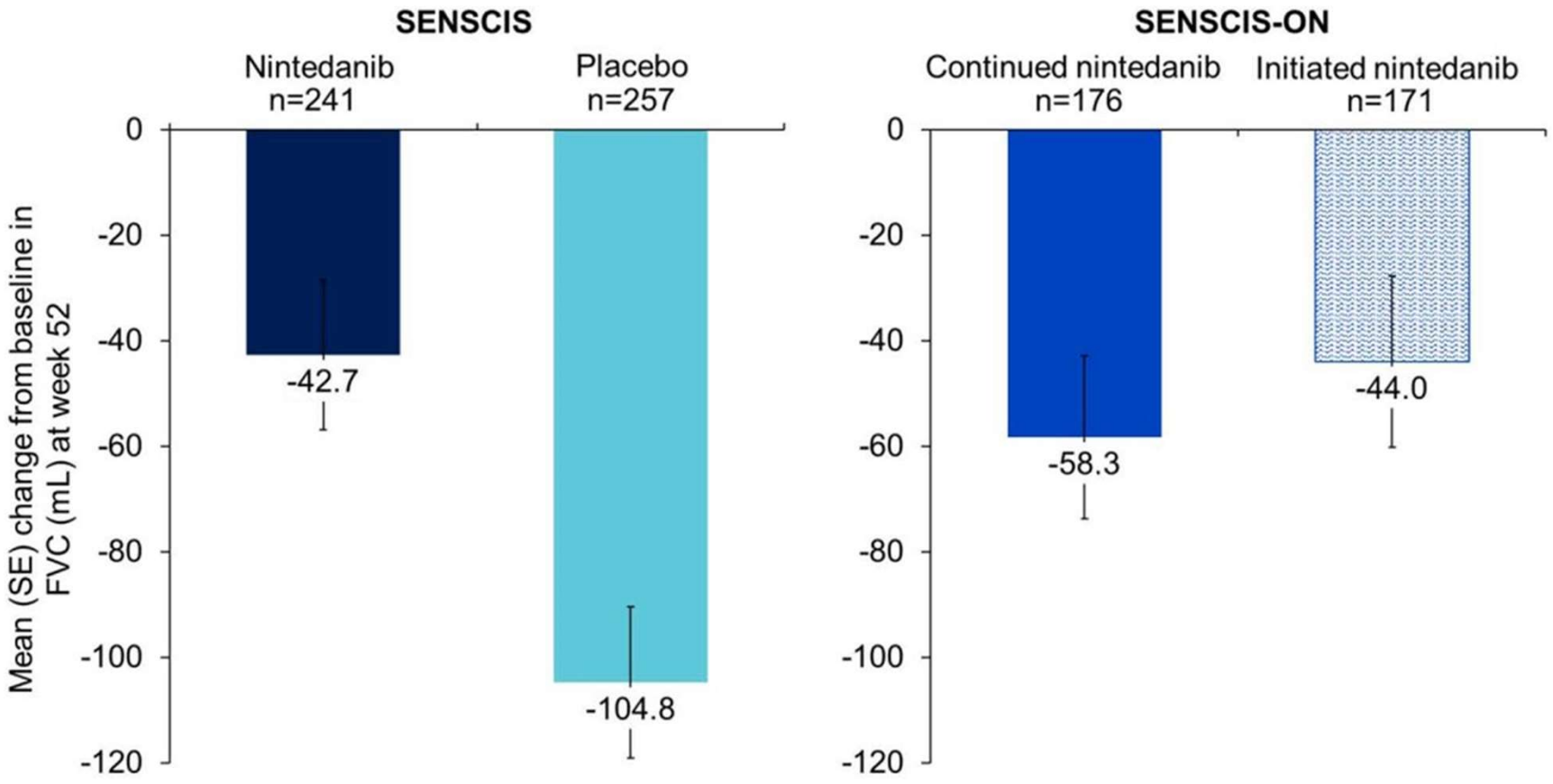
No. of Patients							
Nintedanib	288	283	281	273	278	265	262	241
Placebo	288	283	281	280	283	280	268	257

Lancet Respir Med 2021;
9: 96–106

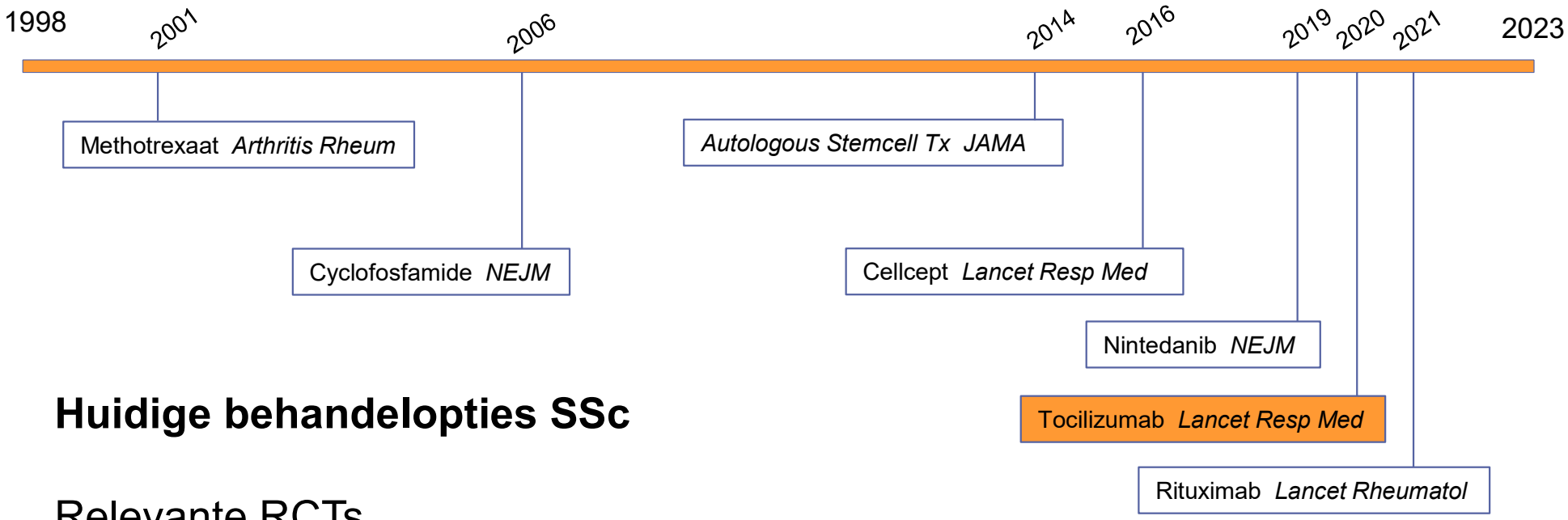
Efficacy and safety of nintedanib in patients with systemic sclerosis-associated interstitial lung disease treated with mycophenolate: a subgroup analysis of the SENSCIS trial



Change from baseline in FVC (mL) at week 52 in SENSCIS and SENSCIS-ON.



Yannick Allanore et al. Ann Rheum Dis 2022;81:1722-1729



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Safety and efficacy of subcutaneous tocilizumab in adults with systemic sclerosis (faSScinate): a phase 2, randomised,controlled trial

Khanna et al

Lancet 2016; 387: 2630 - 2640

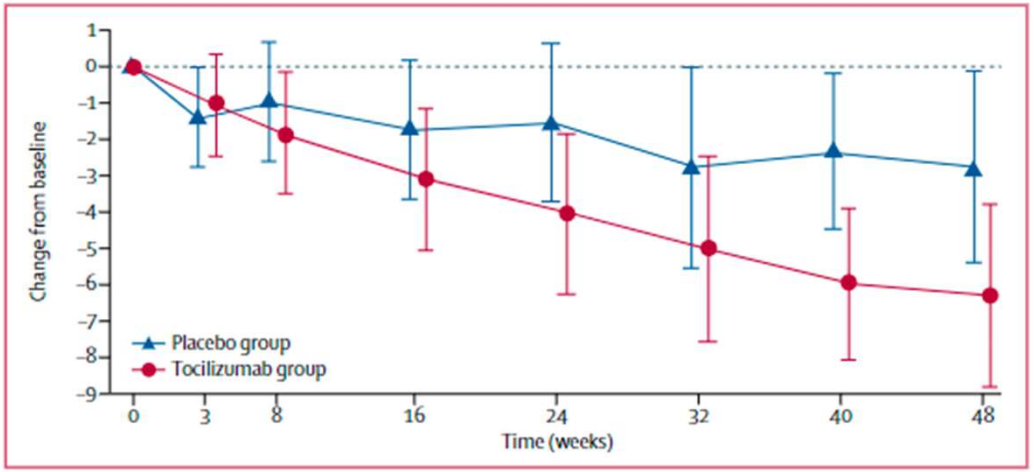


Figure 2: **Change (95% CI) from baseline in modified Rodnan skin score**

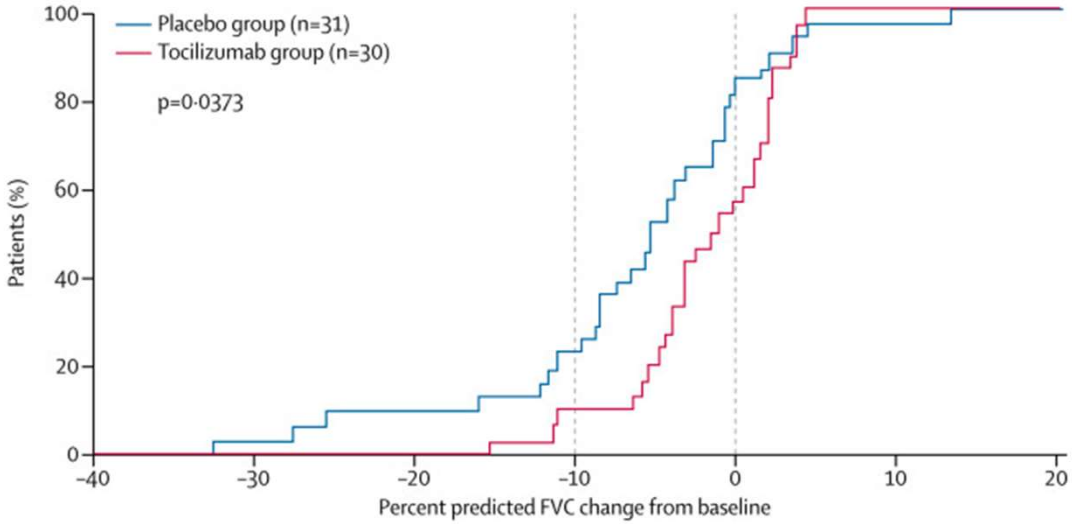
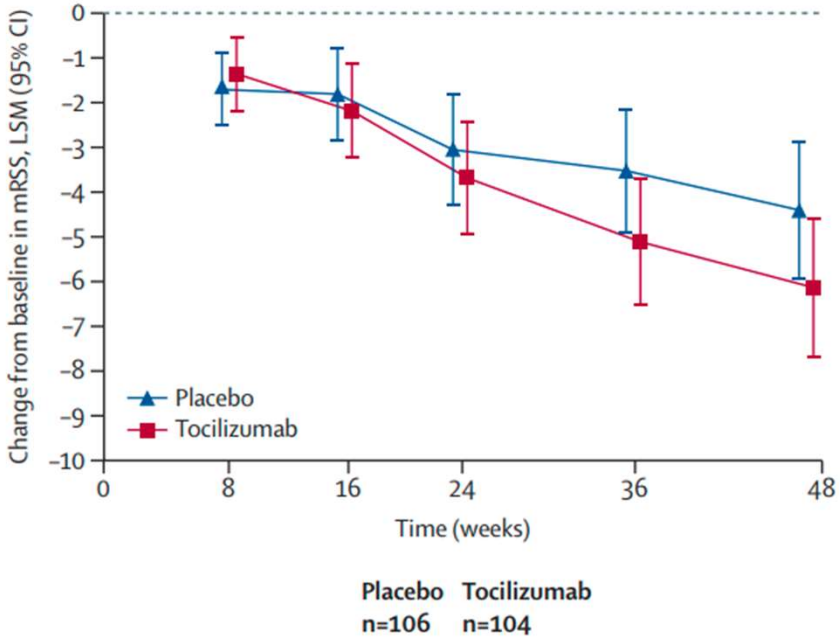


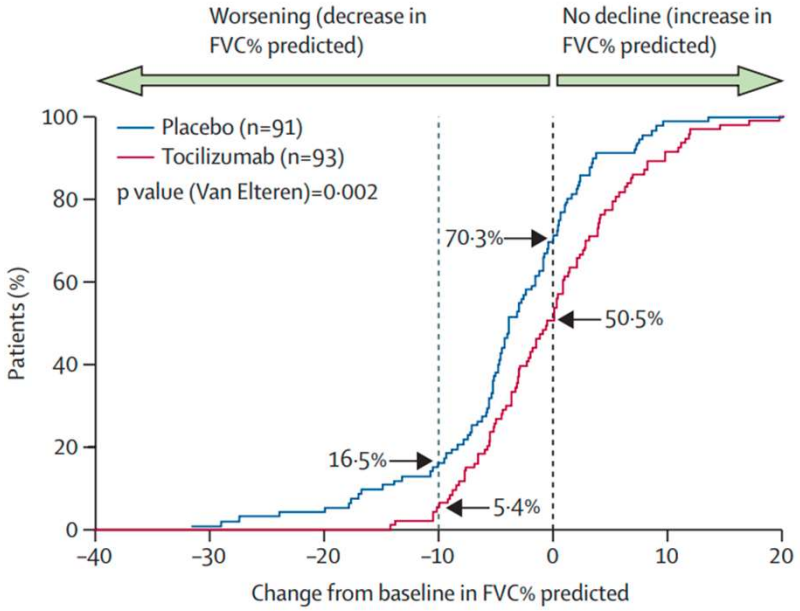
Figure 3. Cumulative distribution of patients by change in percent predicted FVC

Lancet Respir Med 2020;
8: 963-74

Tocilizumab in systemic sclerosis: a randomised, double-blind, placebo-controlled, phase 3 trial

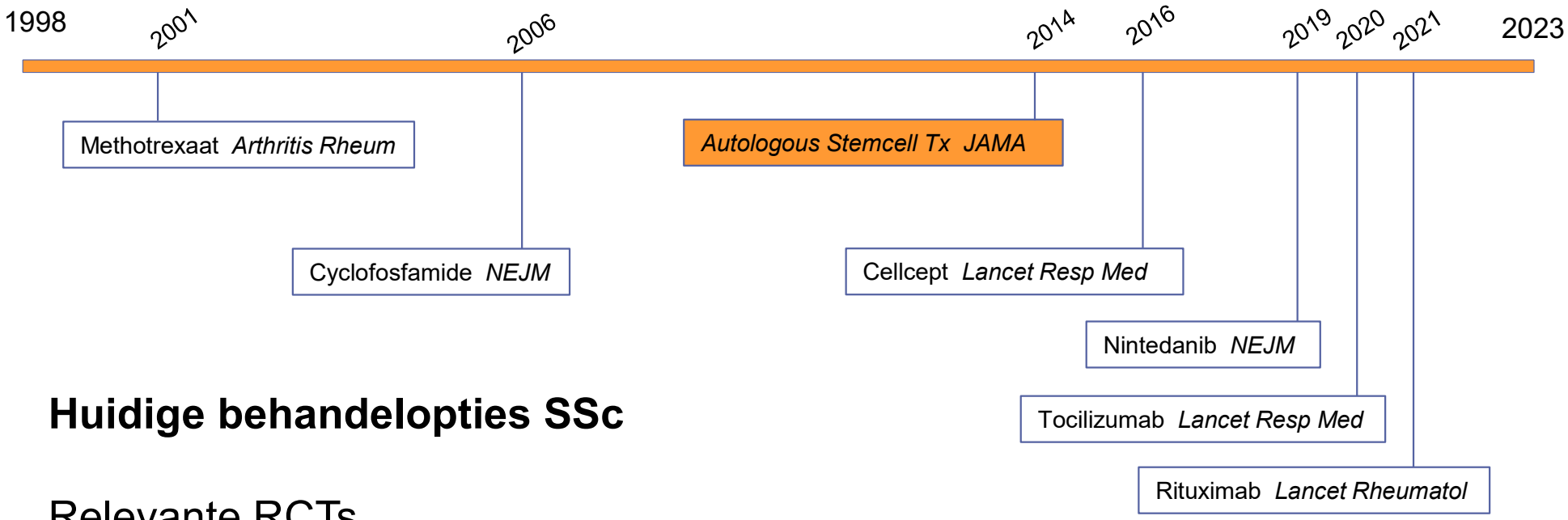
Dinesh Khanna, Celia J F Lin, Daniel E Furst, Jonathan Goldin, Grace Kim, Masataka Kuwana, Yannick Allanore, Marco Matucci-Cerinic, Oliver Distler, Yoshihito Shima, Jacob M van Laar, Helen Spotswood, Bridget Wagner, Jeffrey Siegel, Angelika Jahreis, Christopher P Denton*, for the focuSSced investigators†*





Primaire eindpunt verbetering mRSS: niet gehaald (wel positieve trend)

Secundaire eindpunt FVC: wel stabilisatie in longfunctie



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Autologe stamceltransplantatie

- **Snelle en sterke verbetering mRSS**
- **Verbetering longfunctie**
- **Stabilisatie hart- en nierfunctie**

ASTIS studie : prospectieve gerandomiseerde fase III studie

JAMA 2014 van Laar et al.

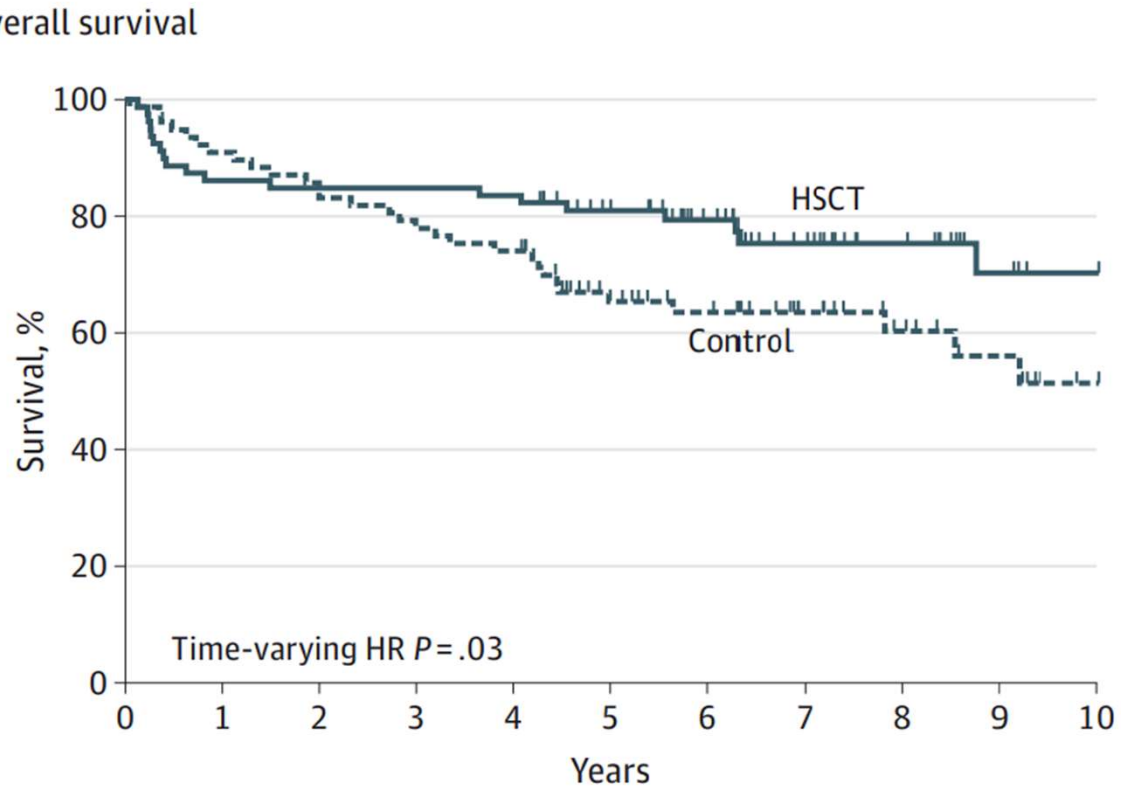
- 156 patiënten met een vroege DcSSc met betrokkenheid van hart, longen of nieren
- Randomisatie tussen 12 maal maandelijkse cyclofosfamide pulsen en autologe perifere stamceltransplantatie

Verbeterde event-free en over-all survival na transplantatie, echter ten koste van verhoogde mortaliteit eerste jaar.

JAMA June 25, 2014

Autologous Hematopoietic Stem Cell Transplantation vs Intravenous Pulse Cyclophosphamide in Diffuse Cutaneous Systemic Sclerosis

A Randomized Clinical Trial



JAMA June 25, 2014

Autologous Hematopoietic Stem Cell Transplantation vs Intravenous Pulse Cyclophosphamide in Diffuse Cutaneous Systemic Sclerosis

A Randomized Clinical Trial

Table 2. Treatment Responses in Clinical Outcome Variables, Change in the Area Under the Time Response Curve From Baseline to 2 Years' Follow-up

Variable	AUC, Mean (SD)		Difference (95% CI)	*P* Value
	HSCT Group (n = 67)[a]	Control Group (n = 64)[a]		
Weight, kg	-0.7 (9.5)	-0.8 (9.6)	-0.2 (-3.5 to 3.1)	.91
Modified Rodnan skin score	-19.9 (10.2)	-8.8 (12.0)	11.1 (7.3 to 15.0)	<.001
Creatinine clearance, mL/min[b]	-12.1 (29.7)	-1.2 (24.1)	10.9 (1.5 to 20.3)	.02
LVEF, % by cardiac echocardiography	-2.2 (14.7)	-1.9 (13.8)	0.3 (-4.7 to 5.2)	.91
Forced vital capacity, % predicted	6.3 (18.3)	-2.8 (17.2)	-9.1 (-14.7 to -2.5)	.004
Total lung capacity, % predicted	5.1 (17.5)	-1.3 (13.9)	-6.4 (-11.9 to -0.9)	.02
Residual volume, % predicted	-4.8 (33.7)	-2.1 (26.9)	2.7 (-7.9 to 13.2)	.62
DLCO, % predicted	-4.7 (13.7)	-4.1 (17.6)	0.6 (-4.9 to 6.0)	.84
HAQ-DI	-0.58 (1.14)	-0.19 (0.79)	0.39 (0.51 to 0.73)	.02
SF-36 score				
Physical component	10.1 (15.8)	4.0 (11.2)	-6.1 (-10.9 to -1.4)	.01
Mental component	3.1 (16.0)	3.4 (17.1)	0.3 (-5.41 to 6.07)	.91
EQ-5D				
Index-based utility score	0.31 (0.50)	0.03 (0.44)	-0.29 (-0.45 to -0.12)	<.001
VAS score	16.9 (44.5)	10.2 (39.7)	-6.7 (-21.33 to 7.87)	.36

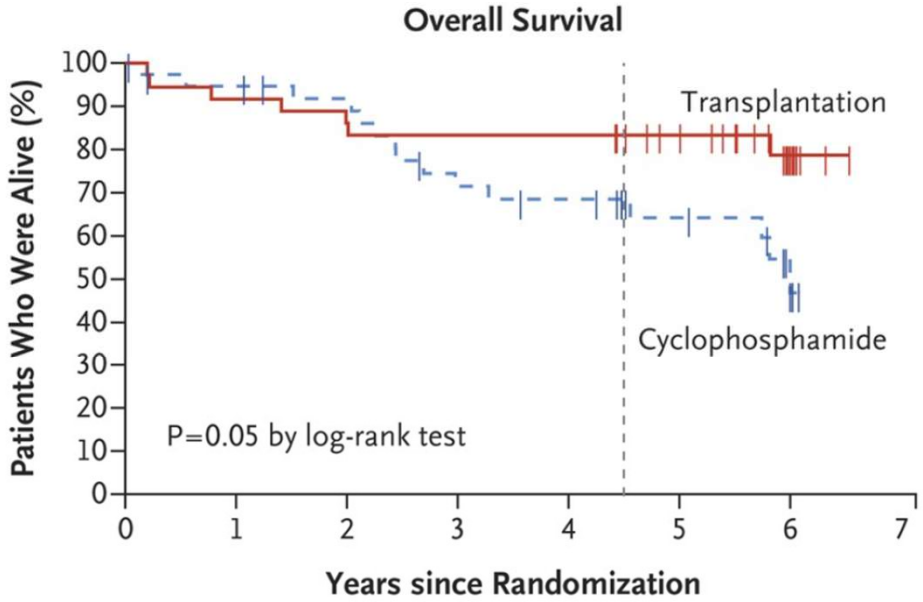
ORIGINAL ARTICLE

Myeloablative Autologous Stem-Cell Transplantation for Severe Scleroderma

Keith M. Sullivan, M.D., Ellen A. Goldmuntz, M.D., Ph.D., Lynette Keyes-Elstein, Dr.P.H., Peter A. McSweeney, M.B., Ch.B., Ashley Pinckney, M.S., Beverly Welch, R.N., M.S.N., Maureen D. Mayes, M.D., M.P.H., Richard A. Nash, M.D., Leslie J. Crofford, M.D., Barry Eggleston, M.S., Sharon Castina, R.N., M.S.N., Linda M. Griffith, M.D., M.H.S., Ph.D., et al., for the SCOT Study Investigators*

N Engl J Med 2018; 378:35-47

C Intention-to-Treat Population



No. at Risk

Transplantation	36	33	31	30	30	25	9
Cyclophosphamide	39	35	32	24	22	15	7

Dept. Rheumatology & Clinical Immunology

UPSIDE TRIAL

Vroege stamceltransplantatie versus rescue stamceltransplantatie bij **vroege diffuse cutane systemische sclerose**

Het doel van deze internationale gerandomiseerde studie is het bepalen van de optimale behandelstrategie bij mensen met vroege diffuse cutane systemische sclerose (dcSSc). Het effect van autologe stamceltransplantatie (SCT) wordt vergeleken met immunosuppressieve medicatie (cyclofosfamide en MMF).

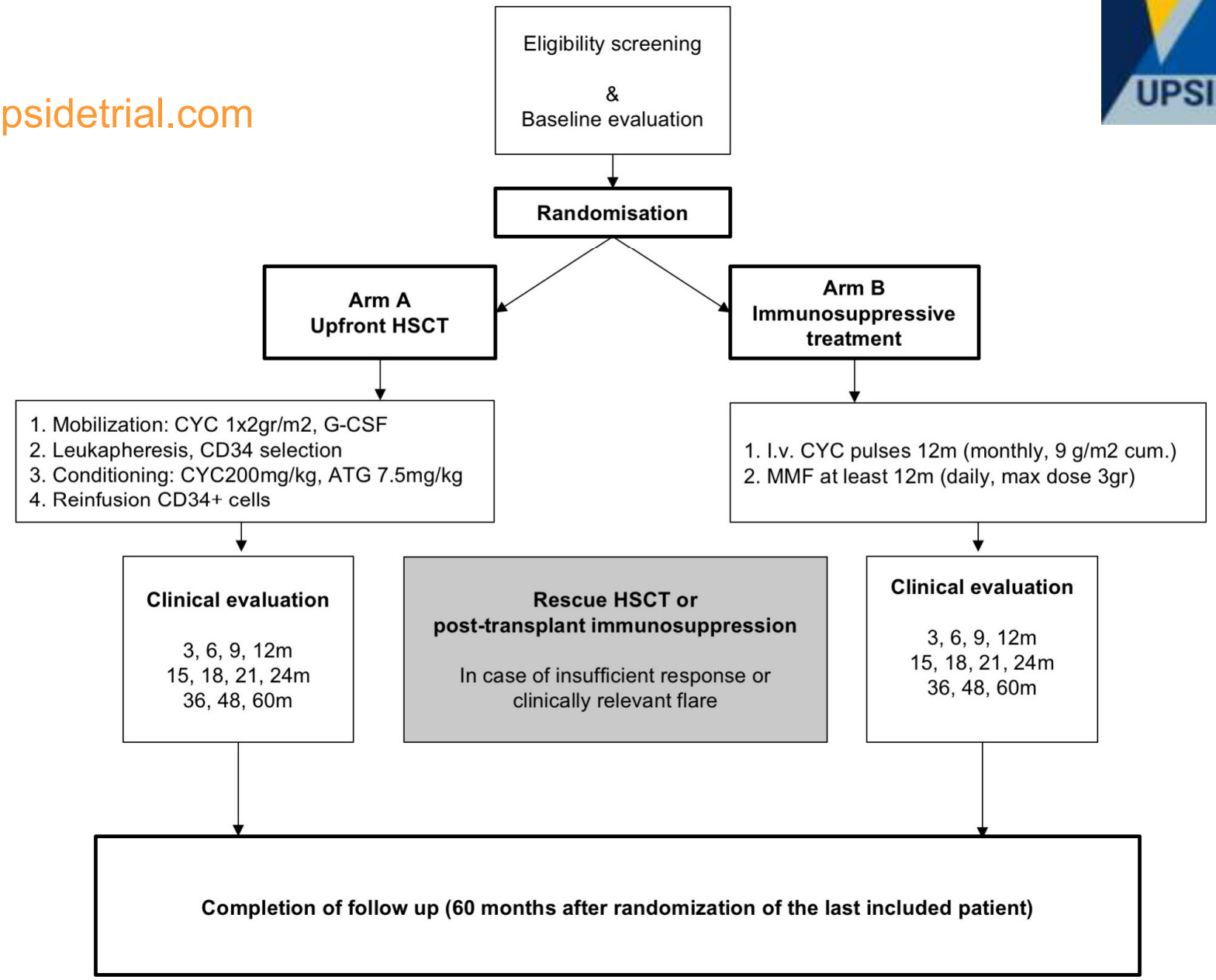
Wie kan deelnemen?

Voor dit onderzoek zoeken we volwassen patiënten met vroege dcSSc met:

- Leeftijd tussen 18 en 65 jaar
- Ziekteduur niet langer dan twee jaar sinds ontstaan van klachten (anders dan het Raynaud fenomeen)
- Een huidscore (mRSS) groter dan 15 of betrokkenheid van organen (nieren, longen of hart)

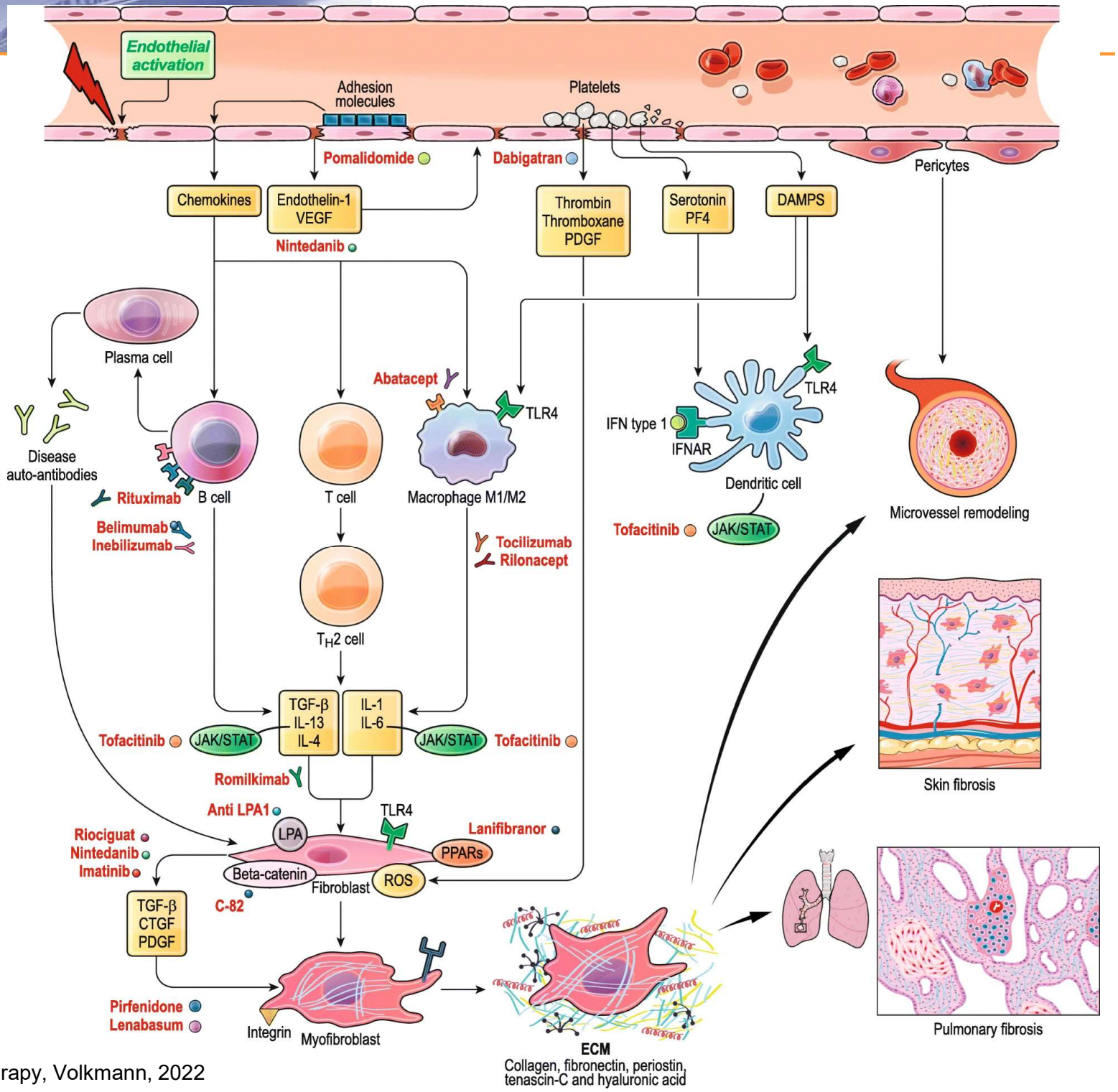
https://upsidetrial.com

https://upsidetrial.com



Pathogenese systemische sclerosis.

Meest relevante celtypes, cytokines en pathways gecombineerd met potentiele targets in recente klinische trials.



Arthritis Research & Therapy, Volkmann, 2022

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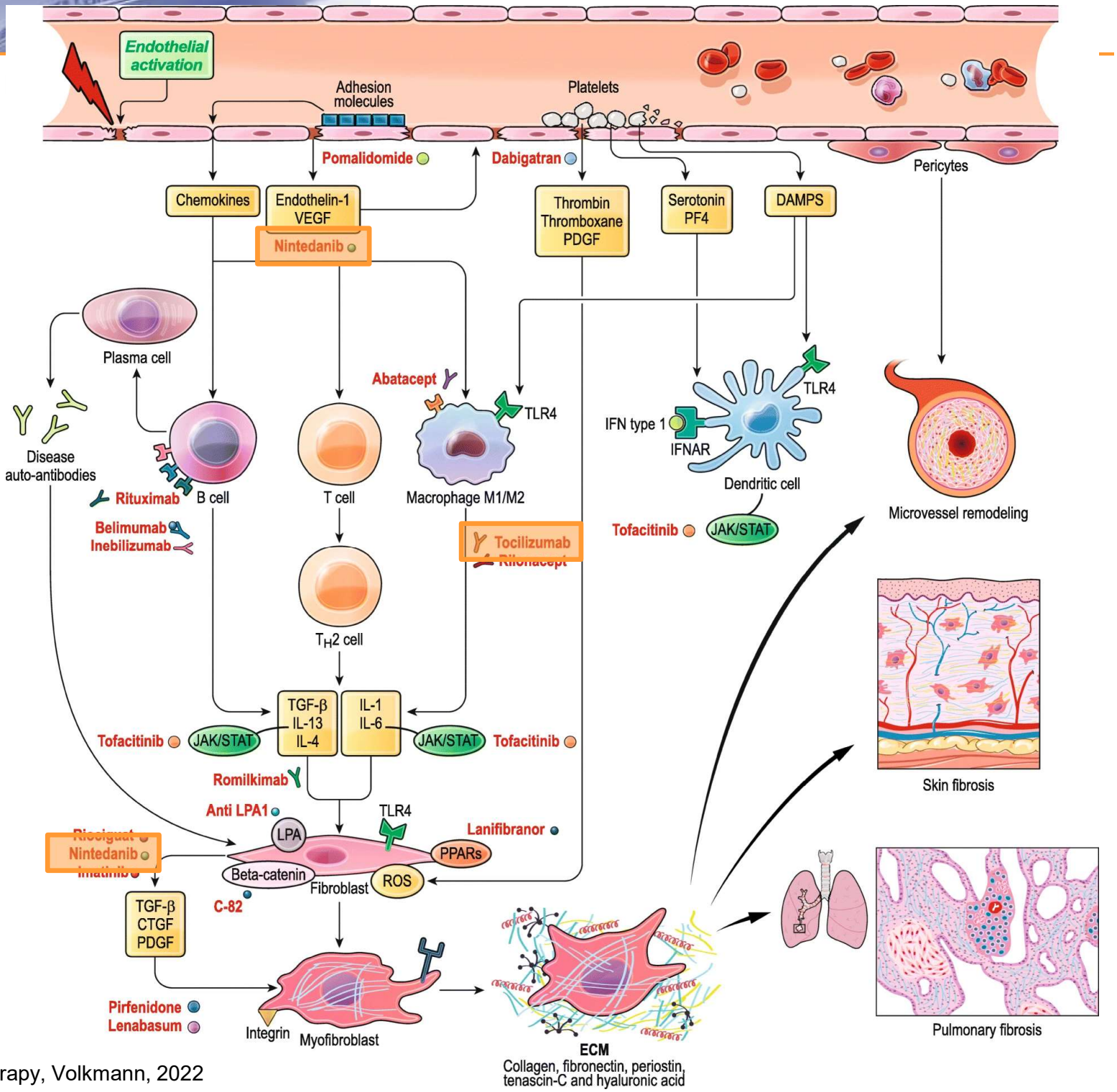

Arthritis Research & Therapy, Volkmann, 2022

Nieuwe ontwikkelingen in behandeling SSc

RCTs zonder positief resultaat:

Lenabasum (synthetic cannaboid CB2 agonist)
Abatacept (costimulation inhibitor)
Riociguat (soluble guanylate cyclase sGC stimulator)

RCTs met (potentiteel) positief resultaat:

Rituximab Fase III (anti-CD20 Ab - Lancet Rheumatology 2021)
Romilkimab Fase II (IL4/IL13 neutralizing Ab - Ann Rheum Disease 2020)

Andere potentiele opties:

Rilonacept (IL-1R1)
Pirfenidone (anti-fibrotic)
SAR100842 (LPA1 receptor agonist)
Anifrolumab

JAK-inhibitors (Tofacitinib, Baracitinib, Ruxolitinib etc)

Current Opinion in Pharmacology, Volkmann, 2022

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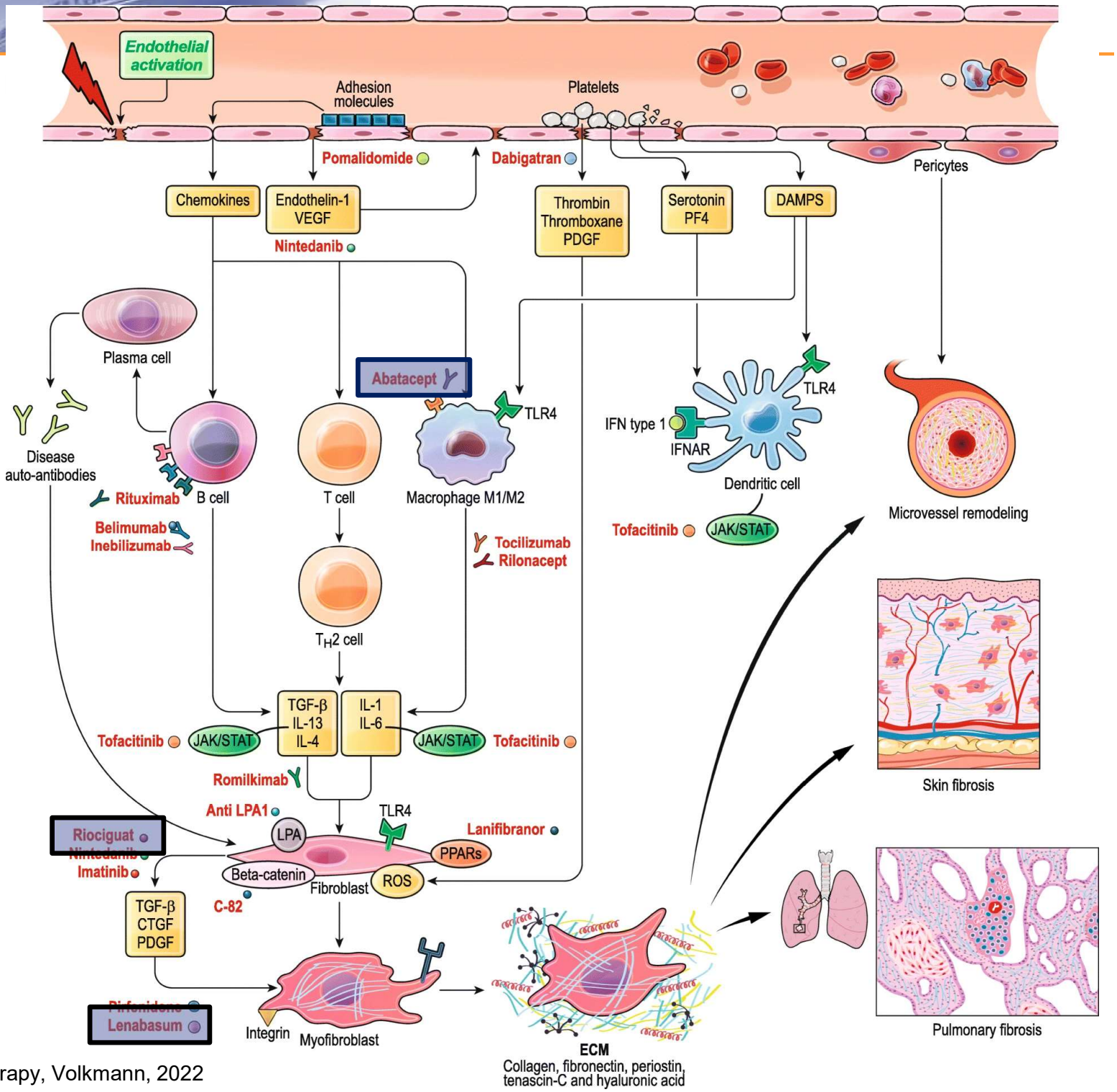

Arthritis Research & Therapy, Volkmann, 2022

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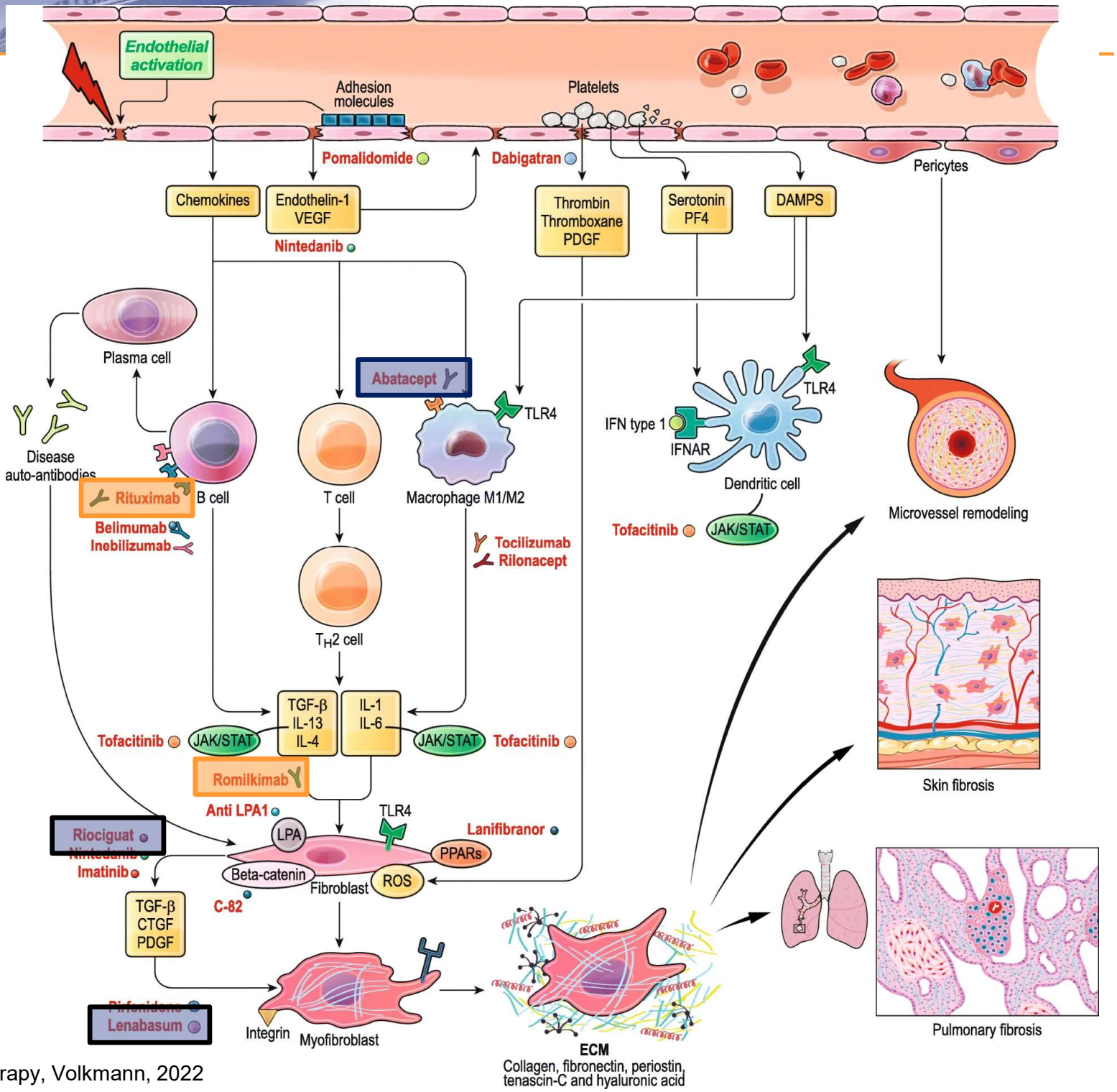


Arthritis Research & Therapy, Volkmann, 2022

Dept. Rheumatology & Clinical Immunology

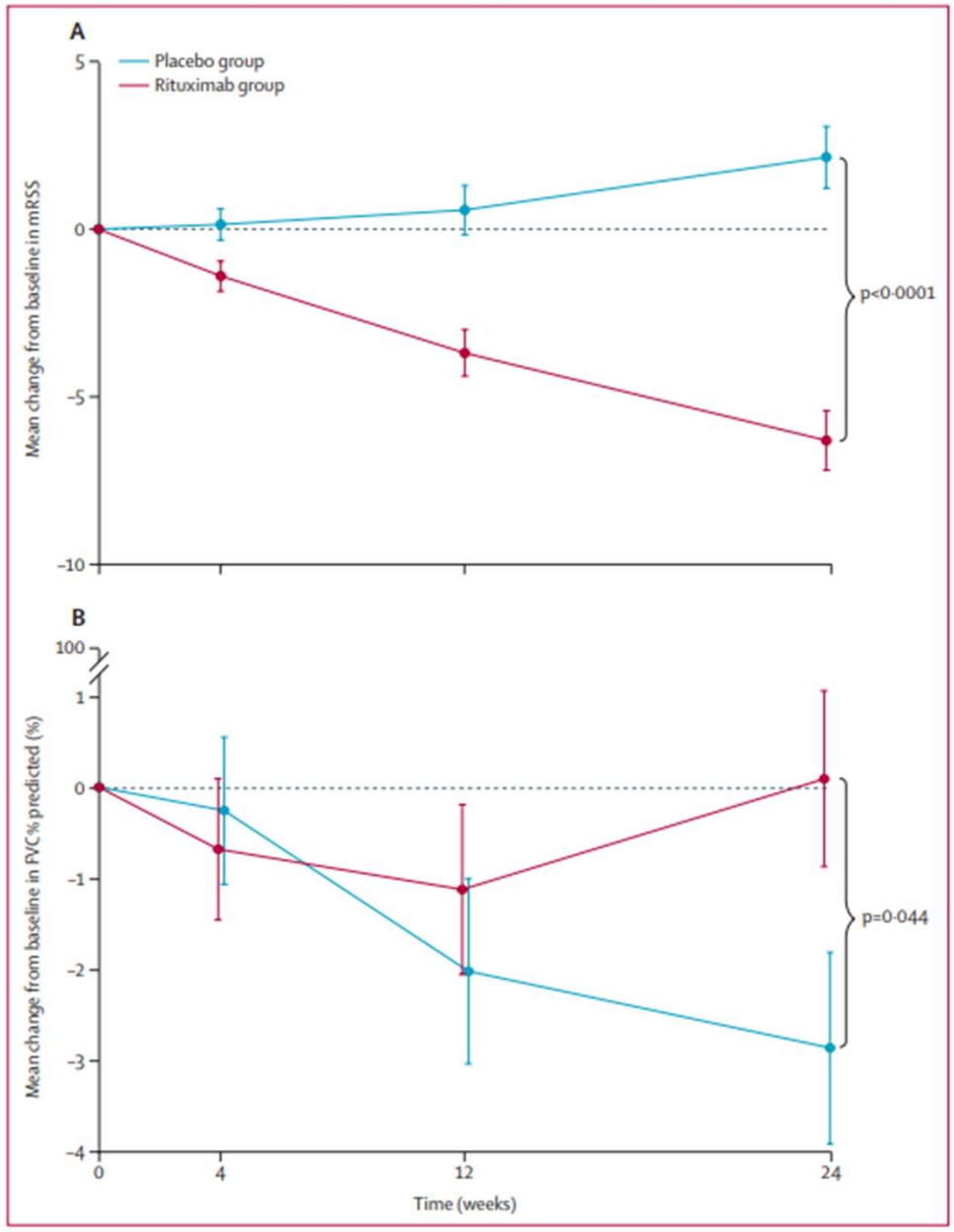


Figure 2: **Patterns of change in primary endpoint and key secondary endpoint**
(A) The least square mean change in mRSS from baseline to 24 weeks. (B) The least square mean change in FVC% predicted from baseline to 24 weeks, in patients with interstitial lung disease. Error bars indicate the SE. mRSS=modified Rodnan skin score. FVC=forced vital capacity.

Articles

Safety and efficacy of rituximab in systemic sclerosis (DESIRES): a double-blind, investigator-initiated, randomised, placebo-controlled trial

Satoshi Ebata MD [a, †], Ayumi Yoshizaki MD [a, †], Koji Oba PhD [b, d], Kosuke Kashiwabara PhD [e], Keiko Ueda MD [e], Yukari Uemura PhD [e, f], Takeyuki Watadani MD [c], Takemichi Fukasawa MD [a], Shunsuke Miura MD [a], Asako Yoshizaki-Ogawa MD [a], Yoshihide Asano MD [a], Naoko Okiyama MD [g], Masanari Kodera MD [h], Prof Minoru Hasegawa MD [i], Prof Shinichi Sato MD [a, †]

The Lancet Rheumatology
Volume 3, Issue 7, July 2021, Pages e489-e497

Interpretation
Rituximab appears to be an effective and safe treatment for systemic sclerosis. The first clinical trial to show efficacy of rituximab with skin sclerosis as the primary endpoint.

Safety and efficacy of rituximab in systemic sclerosis (DESIRES): open-label extension of a double-blind, investigators-initiated, randomised, placebo-controlled trial

Satoshi Ebata MD [a], Ayumi Yoshizaki MD [a, †], Koji Oba PhD [b, d], Kosuke Kashiwabara PhD [e], Keiko Ueda MD [e], Yukari Uemura PhD [e, f], Takeyuki Watadani MD [c], Takemichi Fukasawa MD [a], Shunsuke Miura MD [a], Asako Yoshizaki-Ogawa MD [a], Naoko Okiyama MD [g], Masanari Kodera MD [h], Prof Minoru Hasegawa MD [i], Prof Shinichi Sato MD [a, †]

The Lancet Rheumatology
Volume 4, Issue 8, August 2022, Pages e546-e555

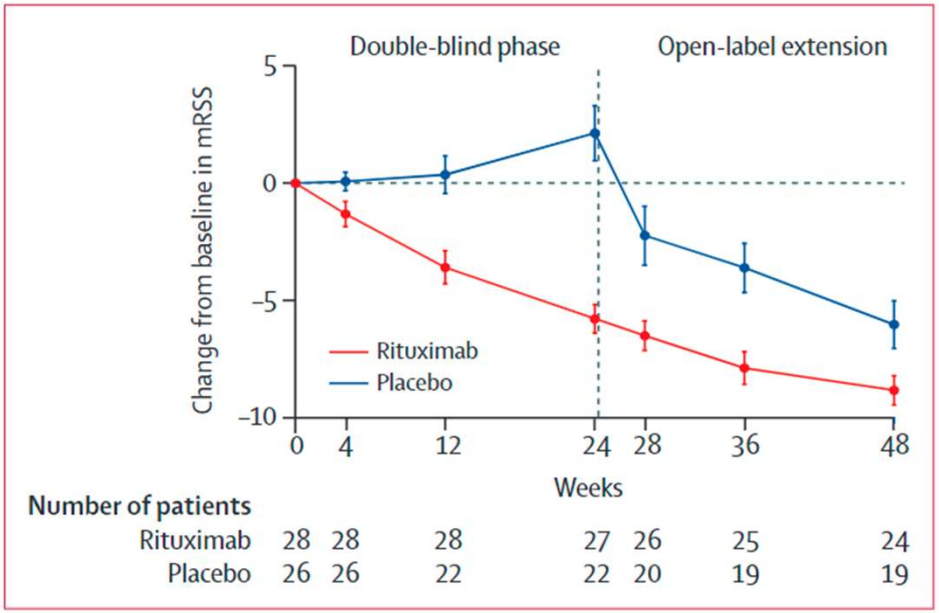
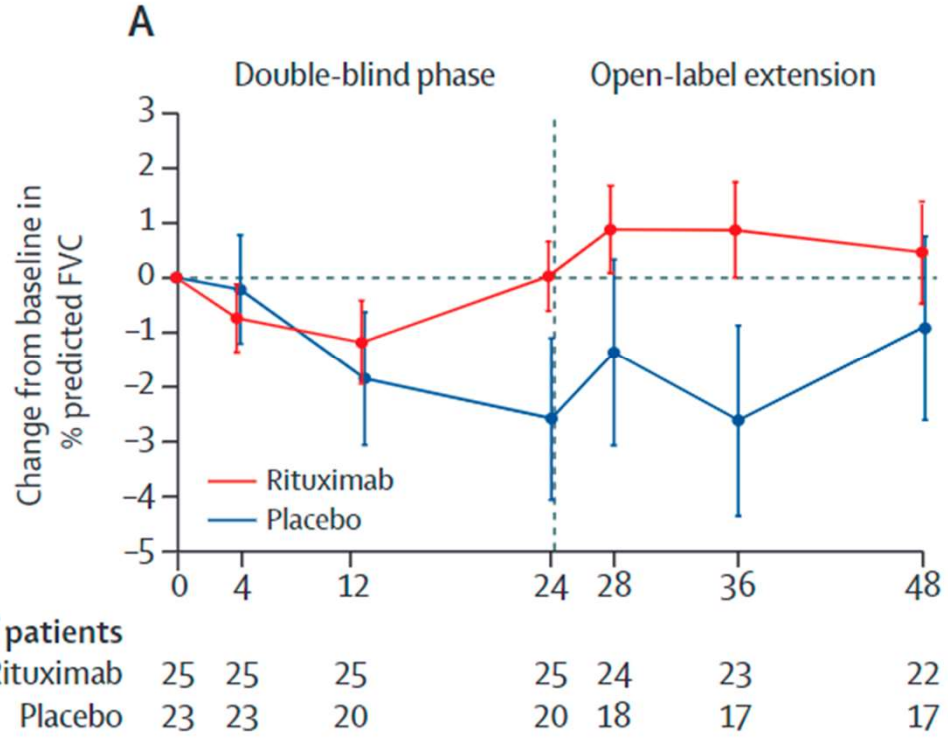


Figure 2: Patterns of change in mRSS

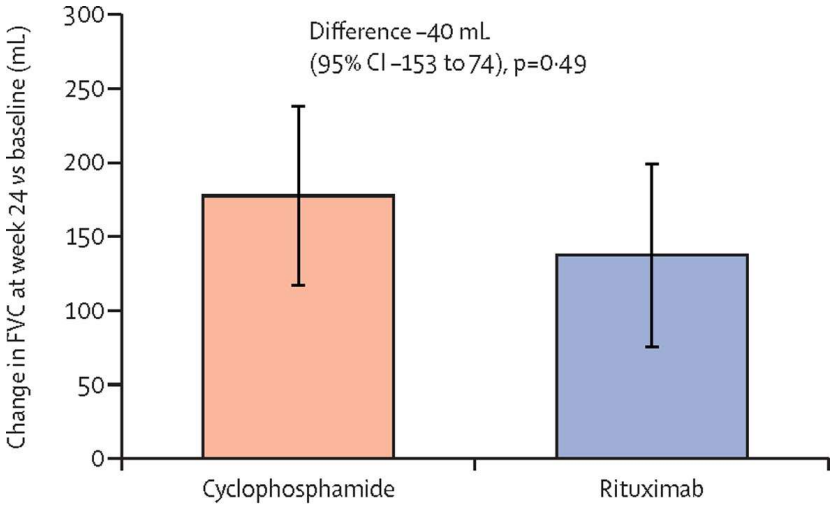
Interpretation
Two courses of rituximab is a safe treatment that can provide sustained improvement in systemic sclerosis for at least 48 weeks

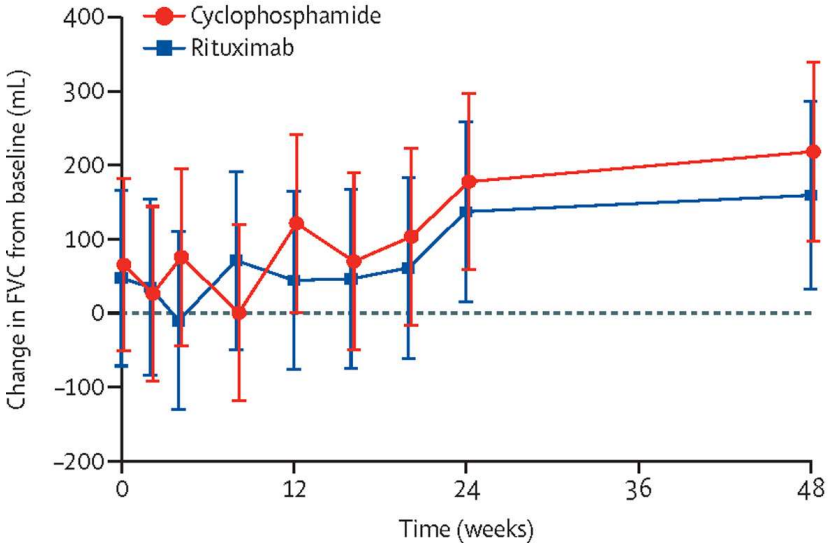


Rituximab versus intravenous cyclophosphamide in patients with connective tissue disease-associated interstitial lung disease in the UK (RECITAL): a double-blind, double-dummy, randomised, controlled, phase 2b trial

Prof Toby M Maher PhD [a, b, c], Veronica A Tudor PhD [b], Peter Saunders PhD [f], Prof Michael A Gibbons PhD [g, h], Sophie V Fletcher MD [i], Prof Christopher P Denton PhD [j], Rachel K Hoyles PhD [f], Helen Parfrey PhD [k], Elisabetta A Renzoni PhD [b, c], Maria Kokosi MD [b], Prof Athol U Wells MD [b, c], Prof Deborah Ashby PhD [d], Matyas Szigeti [e, l], Prof Philip L Molyneaux PhD [b, c]
RECITAL Investigators[†]

THE LANCET
Respiratory Medicine
Volume 11, Issue 1, January 2023, Pages 45-54





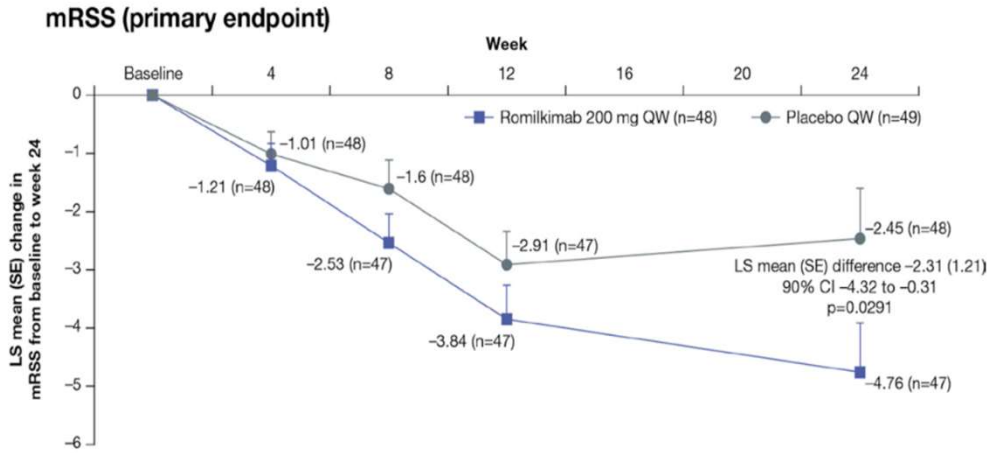
Interpretation
Rituximab was not superior to cyclophosphamide to treat patients with CTD-ILD, although participants in both treatment groups had increased FVC at 24 weeks, in addition to clinically important improvements in patient-reported quality of life. Rituximab was associated with fewer adverse events.

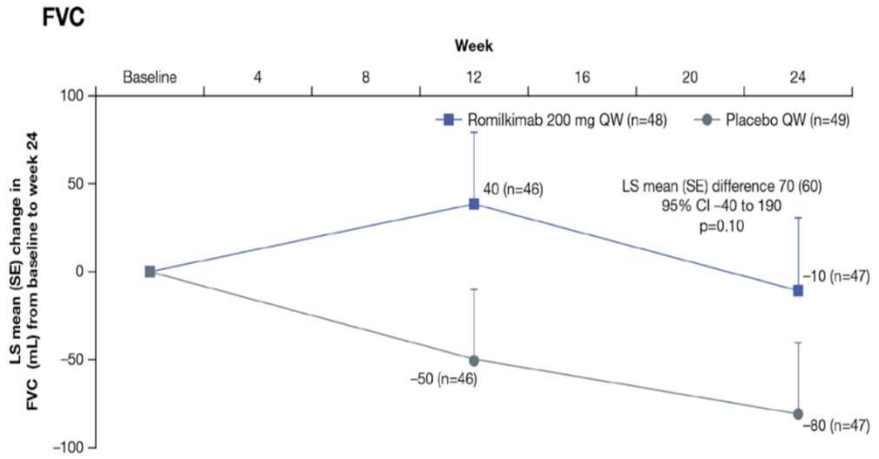
A randomised, double-blind, placebo-controlled, 24-week, phase II, proof-of-concept study of romilkimab (SAR156597) in early diffuse cutaneous systemic sclerosis

Yannick Allanore ,[1] Peter Wung,[2] Christina Soubrane,[3] Corinne Esperet,[3] Frederic Marrache,[4] Raphael Bejuit,[5] Amel Lahmar,[6] Dinesh Khanna ,[7] Christopher P Denton ,[8] On behalf of the Investigators

Ann Rheum Dis 2020;79:1600 - 1607

Romilkimab is an engineered humanized IgG4 antibody that binds and neutralises IL-4 and IL-13





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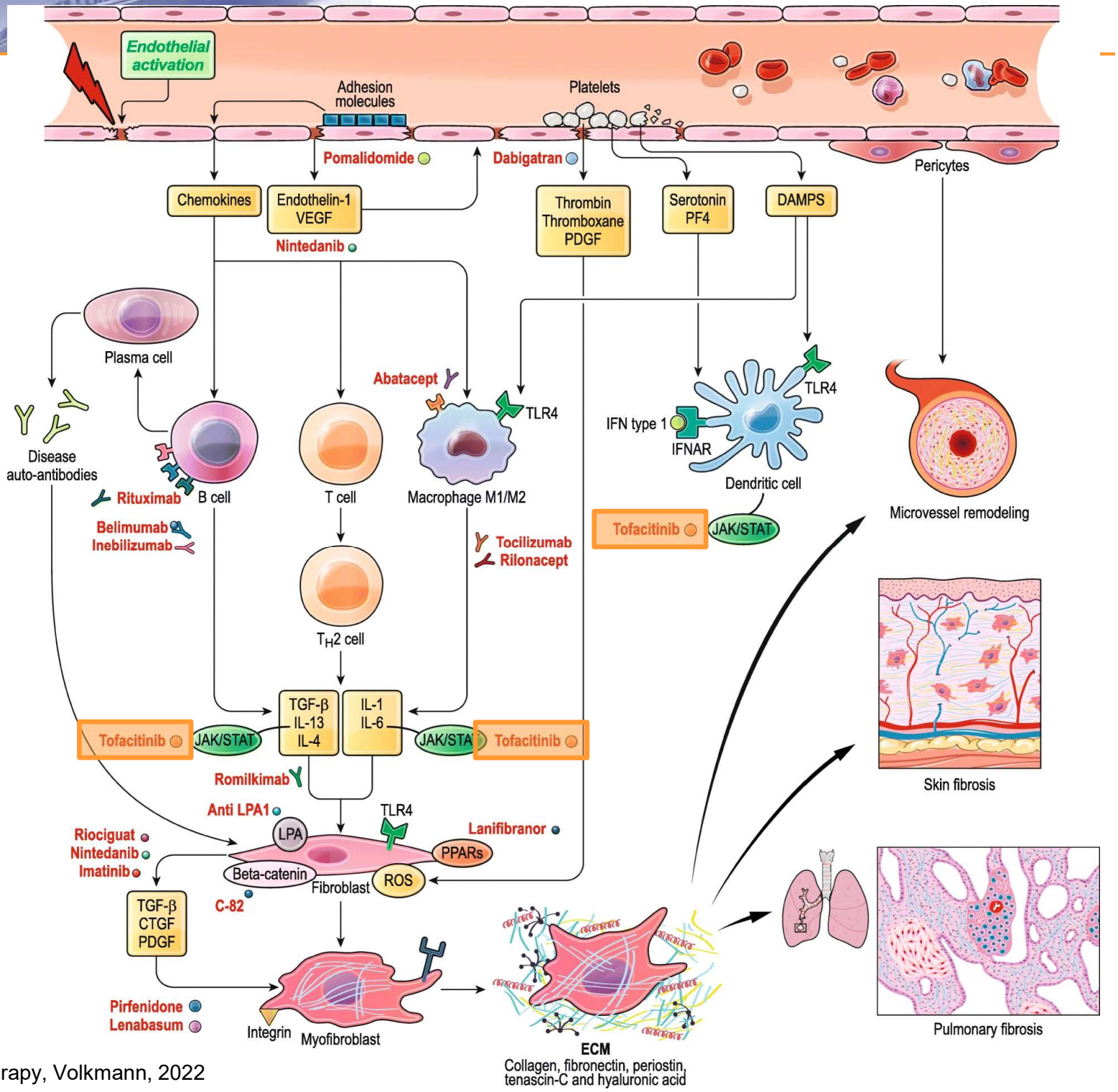


Arthritis Research & Therapy, Volkmann, 2022

Review

Jak Inhibitors for Treatment of Autoimmune Diseases: Lessons from Systemic Sclerosis and Systemic Lupus Erythematosus

Przemysław Kotyla [1,*], Olga Gumkowska-Sroka [2], Bartosz Wnuk [3] and Kacper Kotyla [1]

Pharmaceuticals **2022**, *15*, 936

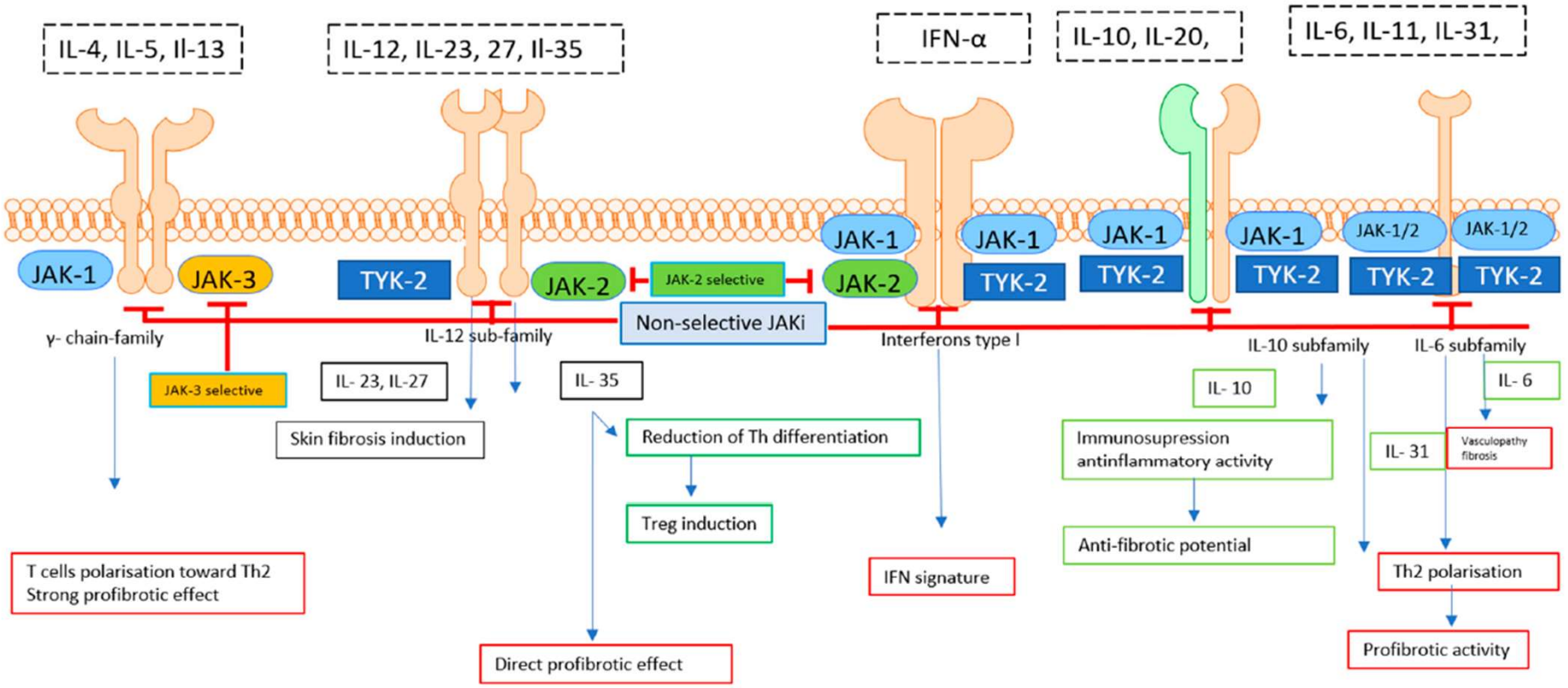
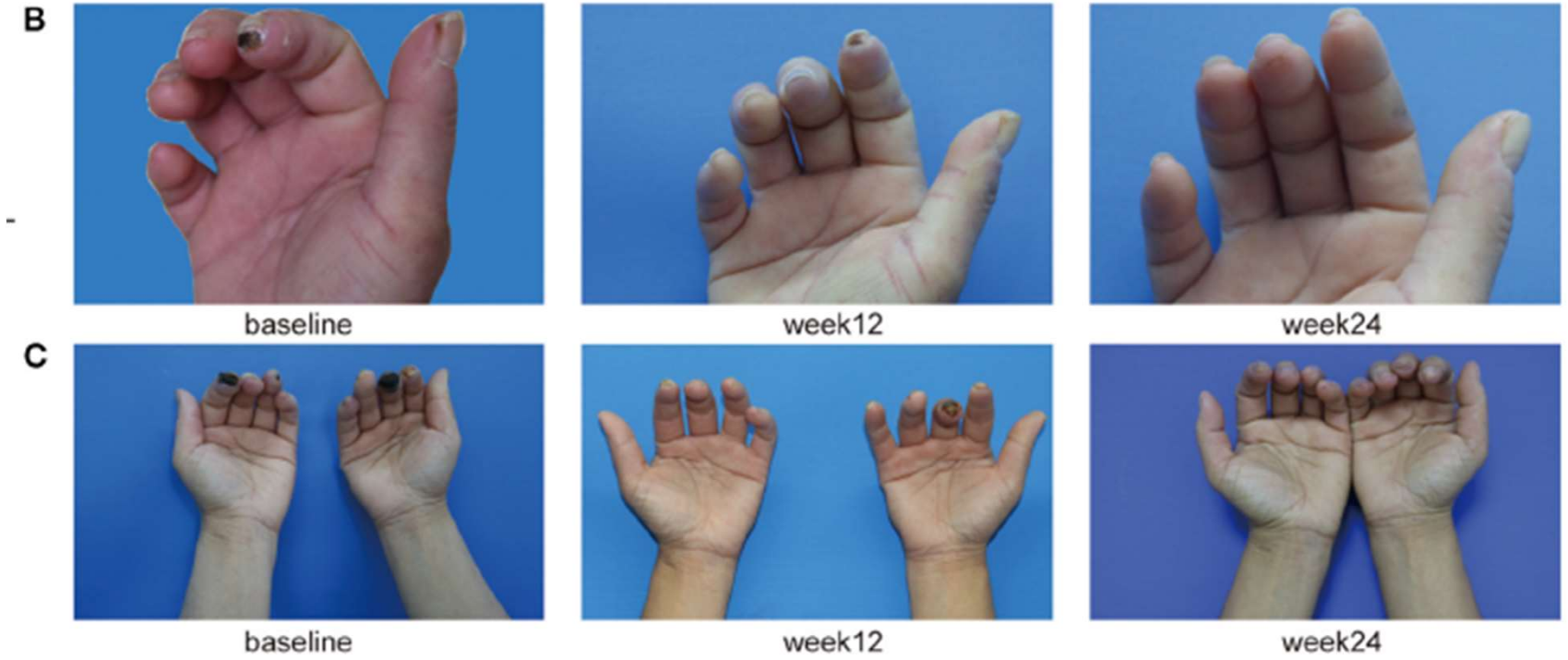


Figure 1. Cytokine network in systemic sclerosis.

JAK1/2 Inhibitor Baricitinib Improves Skin Fibrosis and Digital Ulcers in Systemic Sclerosis

10 adult patients with dcSSc treated with baricitinib



Hou Z,et al (2022) JAK1/2 Inhibitor Baricitinib Improves Skin Fibrosis and Digital Ulcers in Systemic Sclerosis. Front. Med..2022.

JAK1/2 Inhibitor Baricitinib Improves Skin Fibrosis and Digital Ulcers in Systemic Sclerosis

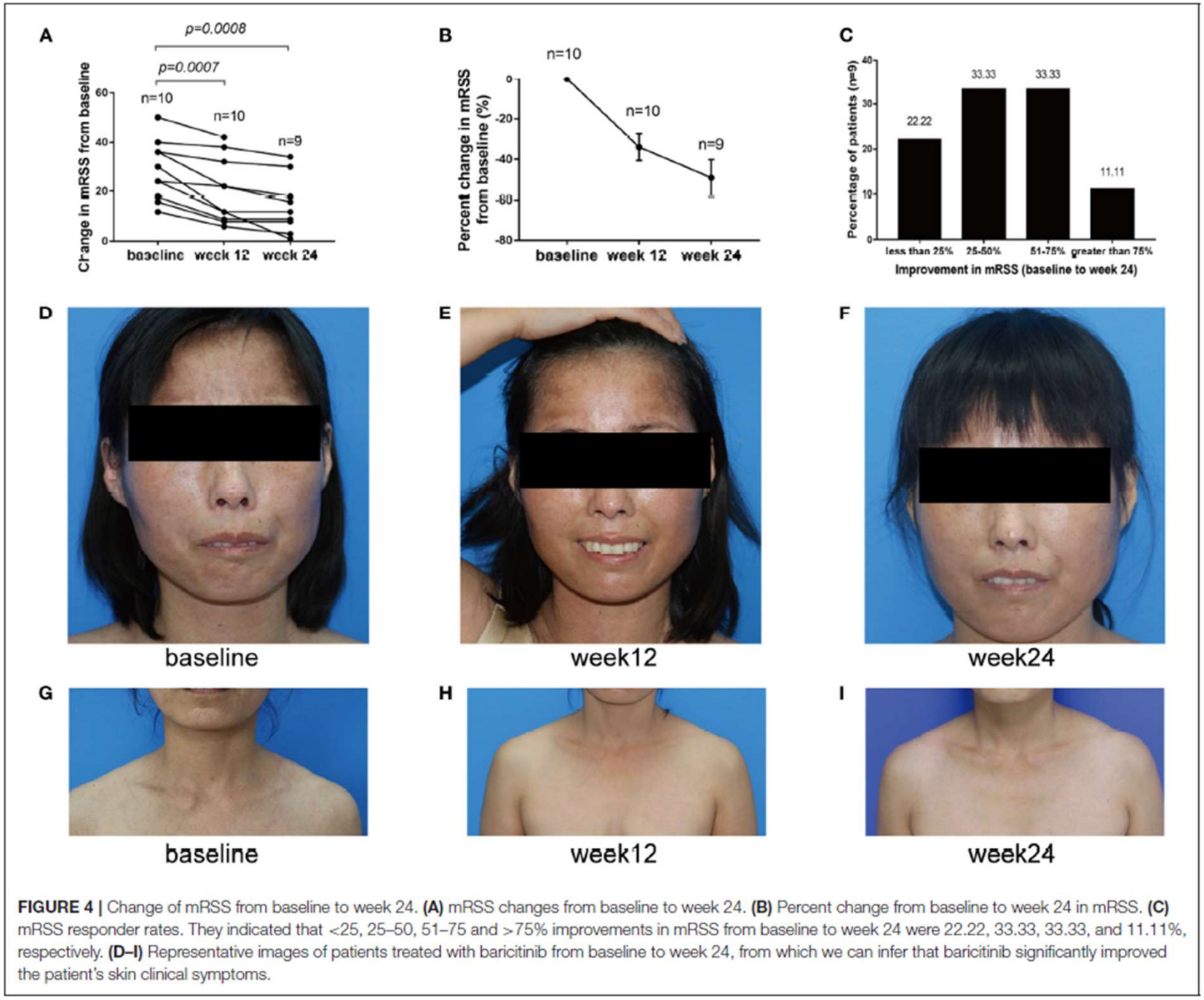
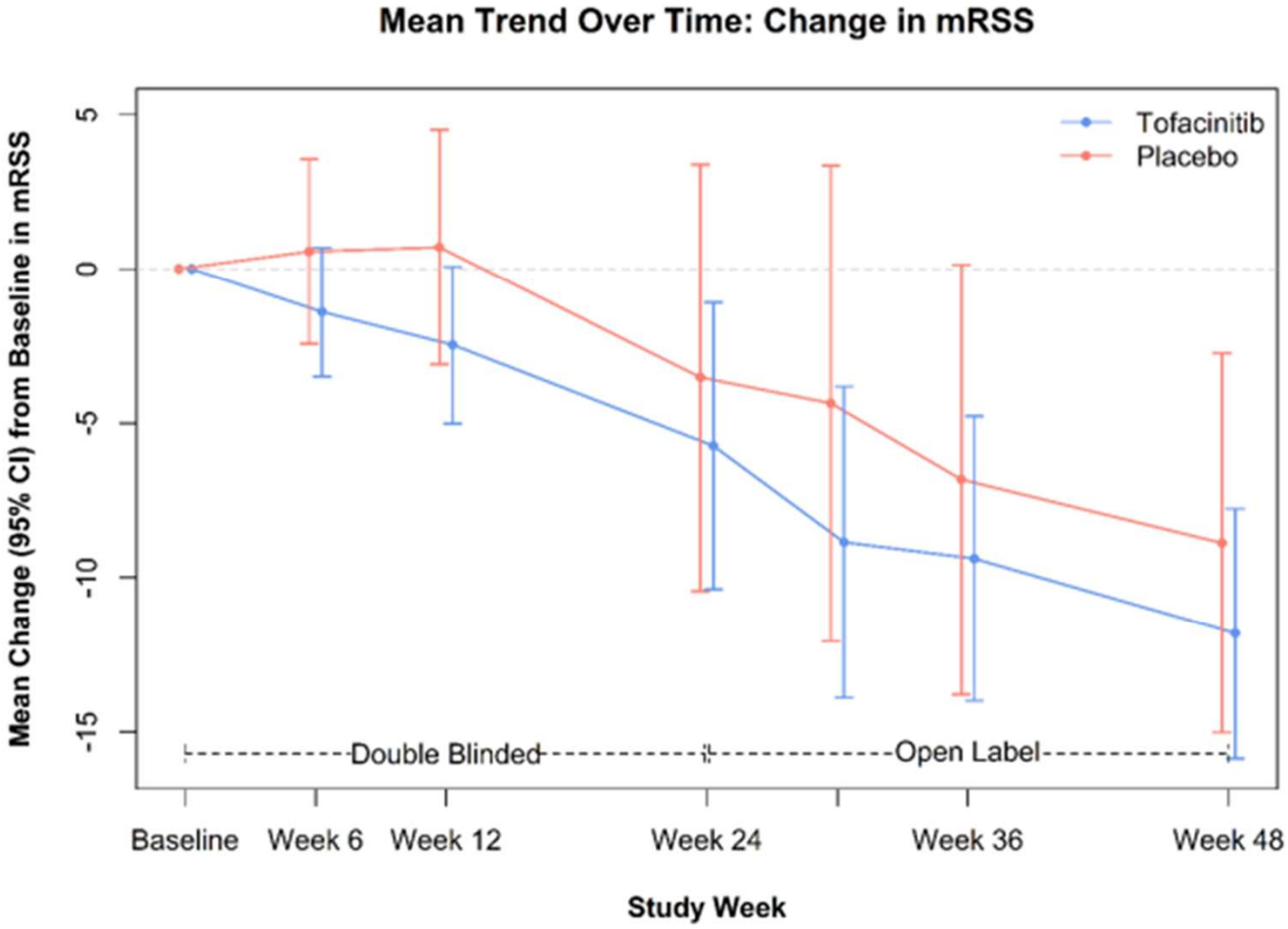


FIGURE 4 | Change of mRSS from baseline to week 24. **(A)** mRSS changes from baseline to week 24. **(B)** Percent change from baseline to week 24 in mRSS. **(C)** mRSS responder rates. They indicated that <25, 25–50, 51–75 and >75% improvements in mRSS from baseline to week 24 were 22.22, 33.33, 33.33, and 11.11%, respectively. **(D–I)** Representative images of patients treated with baricitinib from baseline to week 24, from which we can infer that baricitinib significantly improved the patient's skin clinical symptoms.

JCI insight

Tofacitinib blocks IFN-regulated biomarker genes in skin fibroblasts and keratinocytes in a systemic sclerosis trial

Dinesh Khanna,[1,2] Cristina Padilla,[3] Lam C. Tsoi,[4] Vivek Nagaraja,[1,2] Puja P. Khanna,[1,5] Tracy Tabib,[3] J. Michelle Kahlenberg,[1] Amber Young,[1] Suiyuan Huang,[2,6] Johann E. Gudjonsson,[4] David A. Fox,[1] and Robert Lafyatis[3] *2022*



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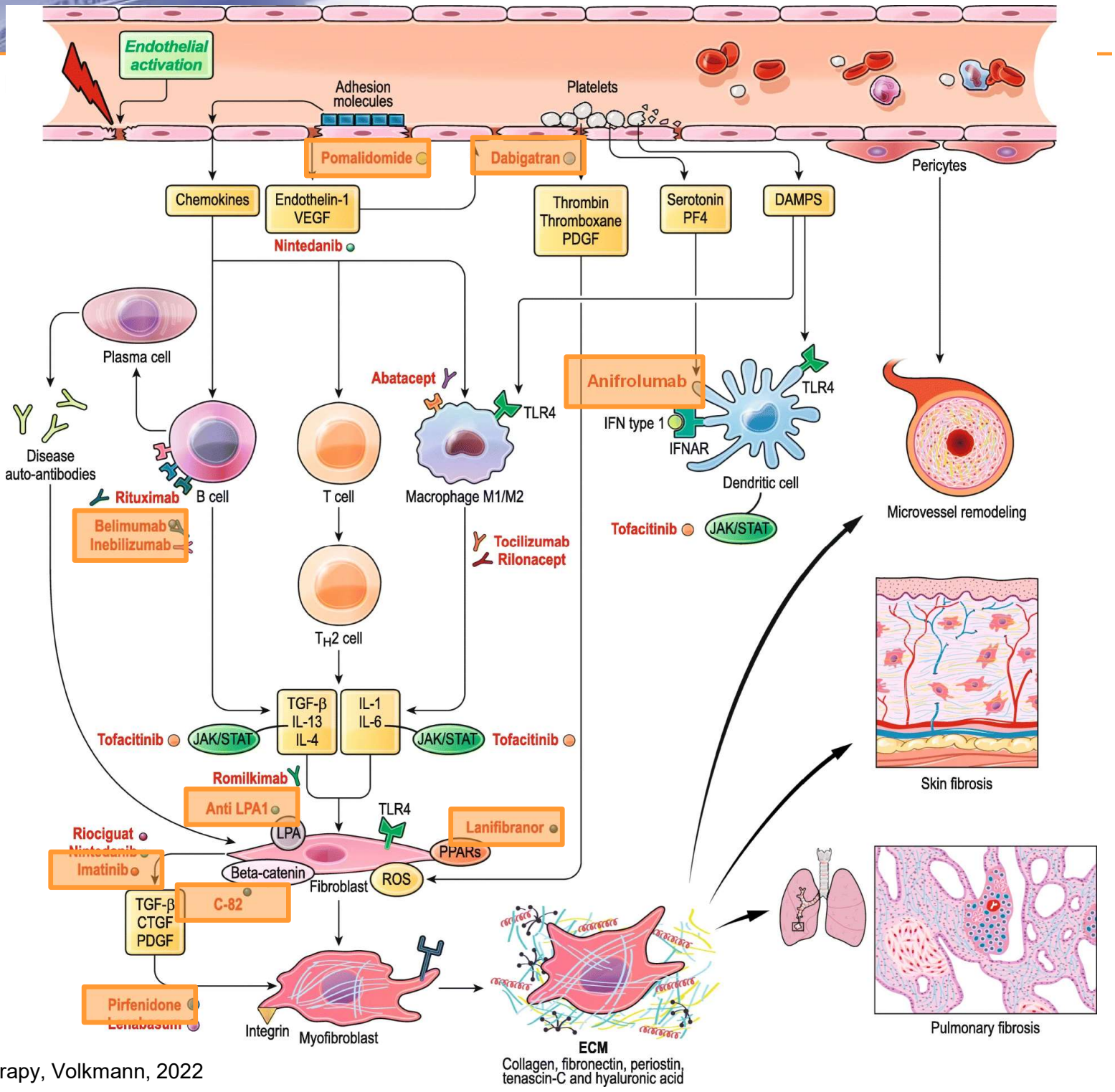


Arthritis Research & Therapy, Volkmann, 2022

Current pharmacological therapies for organ-specific manifestations of SSc

Therapeutic agent	Benefit in SSc
Diffuse cutaneous sclerosis	
MMF	Improvement in mRSS
CYC	Improvement in mRSS
HSCT	Improvement in mRSS
Interstitial lung disease	
CYC	Improvement in FVC, radiographic fibrosis and dyspnea
MMF	Improvement in FVC, radiographic fibrosis and dyspnea
Tocilizumab	Stabilization of FVC in early dcSSc with and without ILD
Nintedanib	Reduction in annual rate of decline of FVC
Rituximab	Improvement in mRSS and FVC (trend)
Romilkimab	Potential improvement mRSS and FVC
JAK-inhibitors?	
Anifrolumab?	
Pirfenidone?	

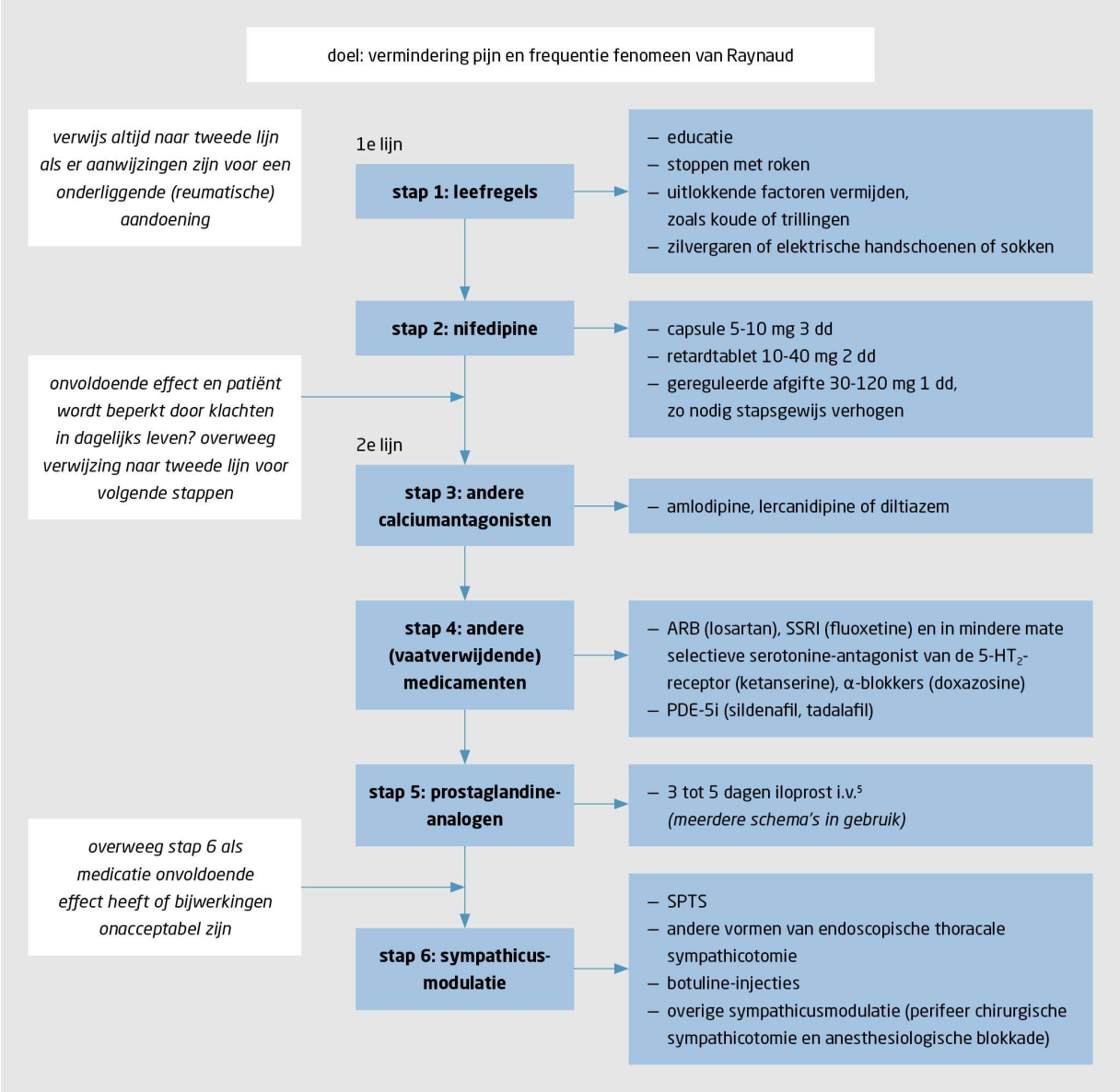
Current Opinion in Pharmacology, Volkmann, 2022

Symptoomgerichte adjuvante behandelmogelijkheden voor SSc

Probleem/klacht	Interventie
Kortademigheid	(Long)revalidatie, O2
Hoest	Hoestmiddel / slijmoplosser
Droge ogen	Oogdruppels
Microstomie	Mondoefeningen, Botox injecties (?)
Jeuk / rash	Beperk blootstelling aan water, zeep, geparfumeerde huidproducten.
Teleangiëctastieën	Camouflage make up, laserbehandeling
Zuurbranden / reflux	PPI, H2-blokker, dieet maatregelen
Opgeblazen gevoel / flatulentie	Aanpassing dieet, kleine maaltijden, prokinetica, evt antibiotica bij bacteriële overgroei
Diarree	Aanpassing dieet, antibiotica bij bacteriële overgroei, aanpassing medicatie, diarree remmers (loperamide)
Obstipatie	Aanpassing dieet, prokinetica, voldoende vochtintake en lichaamsbeweging, laxantia.
Fecale incontinentie	Aanpassing dieet, fysiotherapie, bekkenbodemoefeningen, biofeedbacktherapie, sacrale neuromodulatie
Contracturen	Fysiotherapie, ergotherapie, evt nachtspalk, orthese
Calcinosis cutis	Wondpreventie, diltiazem, colchicine, bisfosfonaten, evt natriumthiosulfaat (topicaal of injectie)

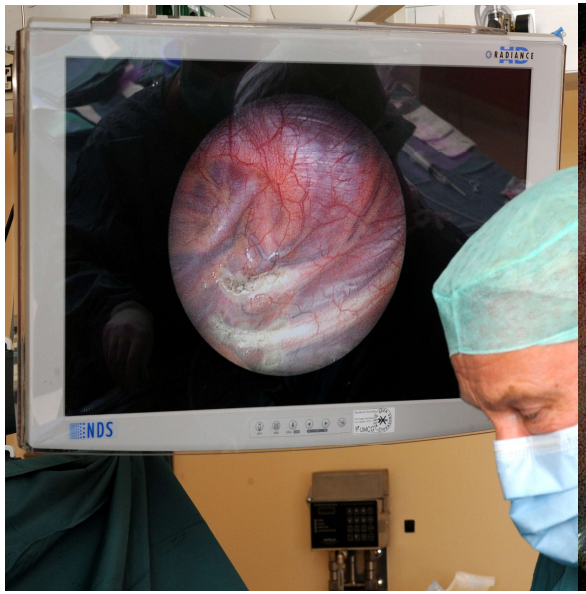
Aangepast/overgenomen van Volkmann et al, Lancet 2023

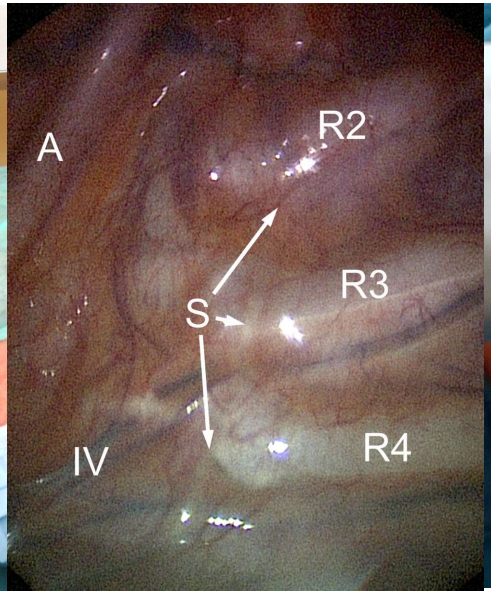
Fenomeen van Raynaud

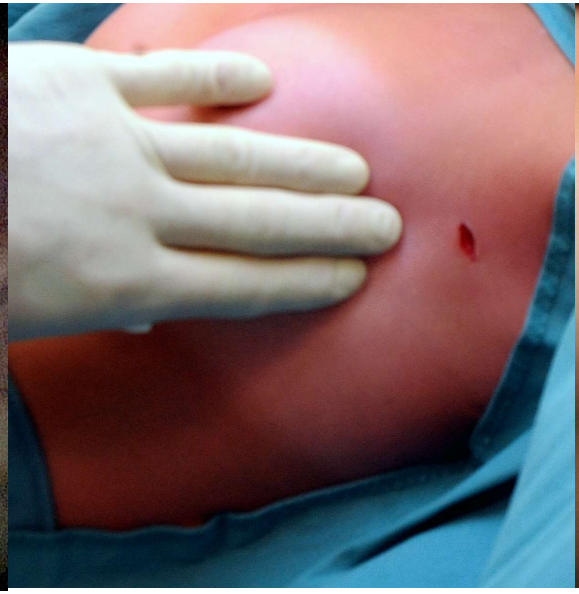


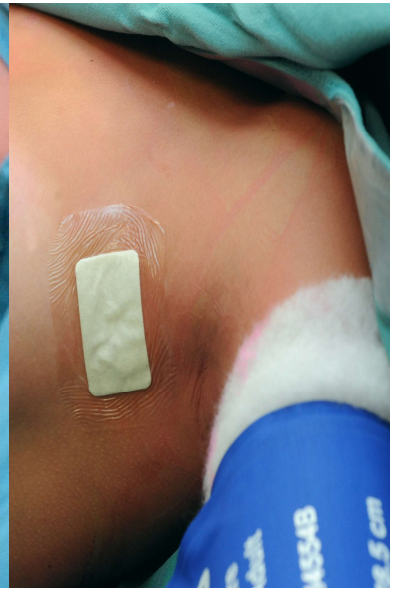
Van Roon NTVG 2021

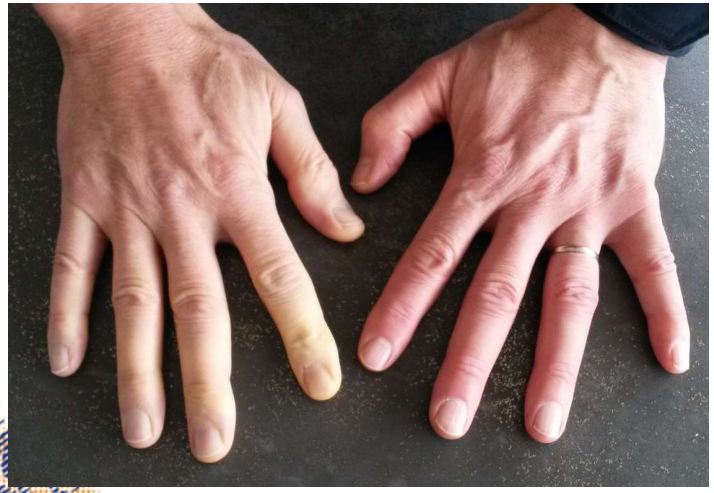
SPTS (single port thoracale sympathicotomie)



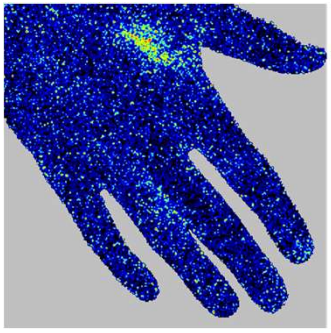


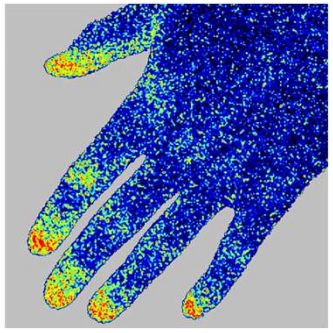


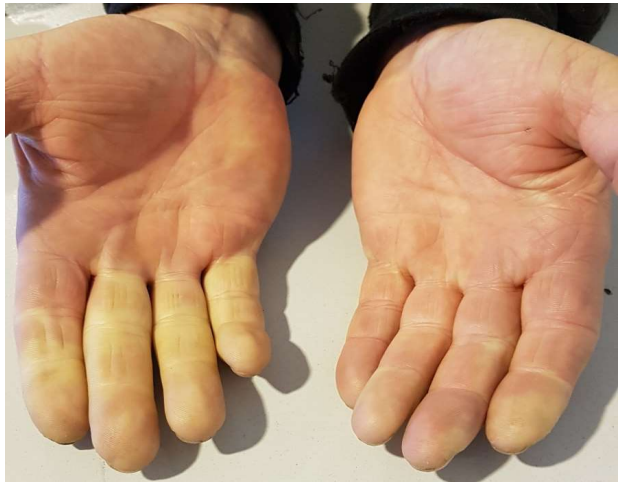




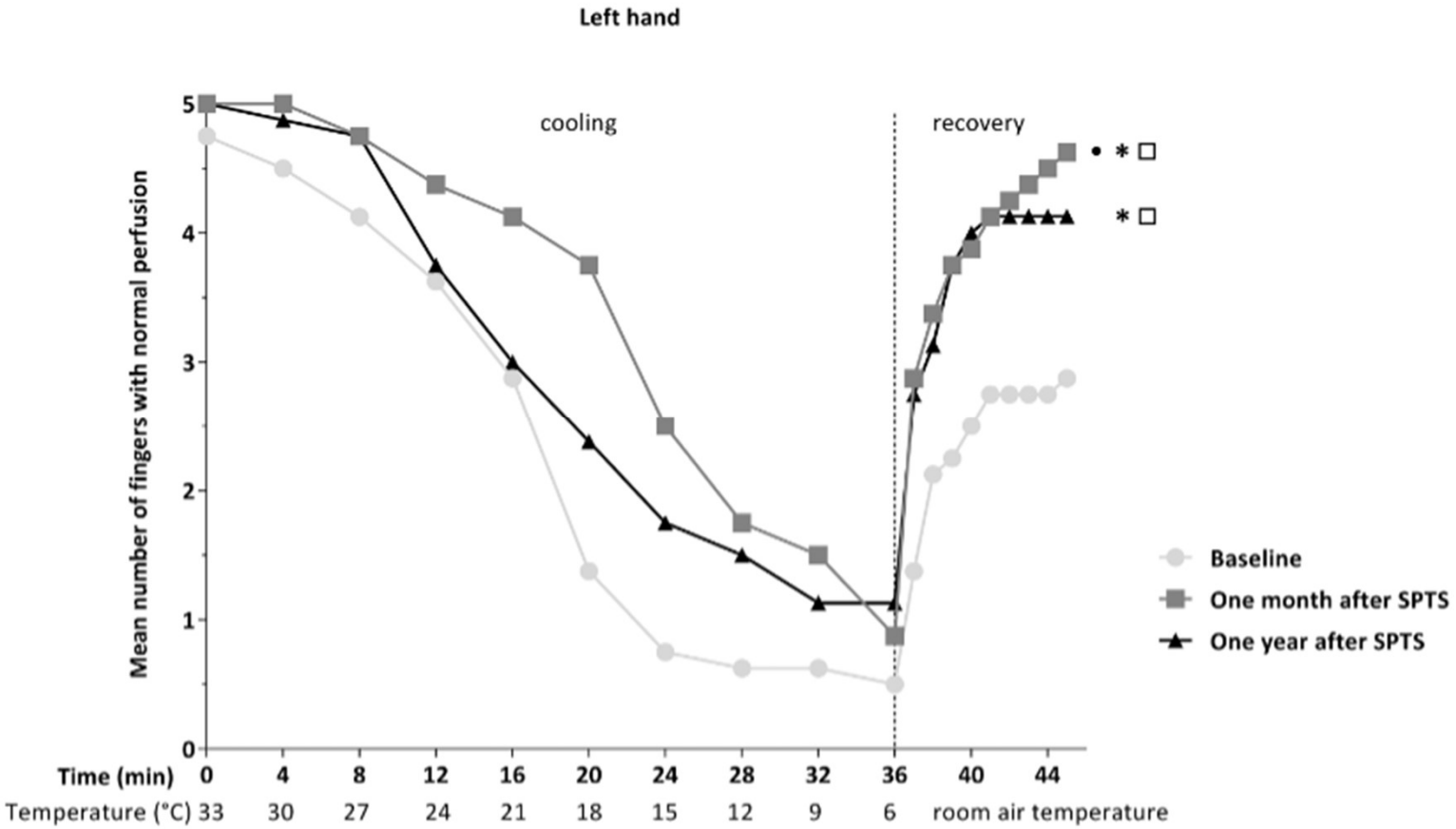
Resultaat vrijwel direct zichtbaar







Van Roon Rheumatology 2020



●p<0.05 for cooling period, *p<0.05 for recovery period, □p<0.05 for total procedure, all compared to baseline.

Treatment of resistant Raynaud's phenomenon with single-port thoracoscopic sympathicotomy: One-year follow-up

Michiel Kuijpers [b,1], Saskia C. van de Zande [a,1,*], Anniek M. van Roon [a], Arie M. van Roon [a], Alja J. Stel [c], Andries J. Smit [a], Wobbe Bouma [b], Mike J.L. DeJongste [d], Massimo A. Mariani [b], Theo J. Klinkenberg [b], Douwe J. Mulder [a]

Seminars in Arthritis and Rheumatism 56 (2022)

Systemische Sclerose

Nieuwe behandelopties laatste vijf jaar!

Kleine groep patienten in studies
Meestal diffuse systemische sclerose
Opties voor studies in gelimiteerde systemische sclerose?

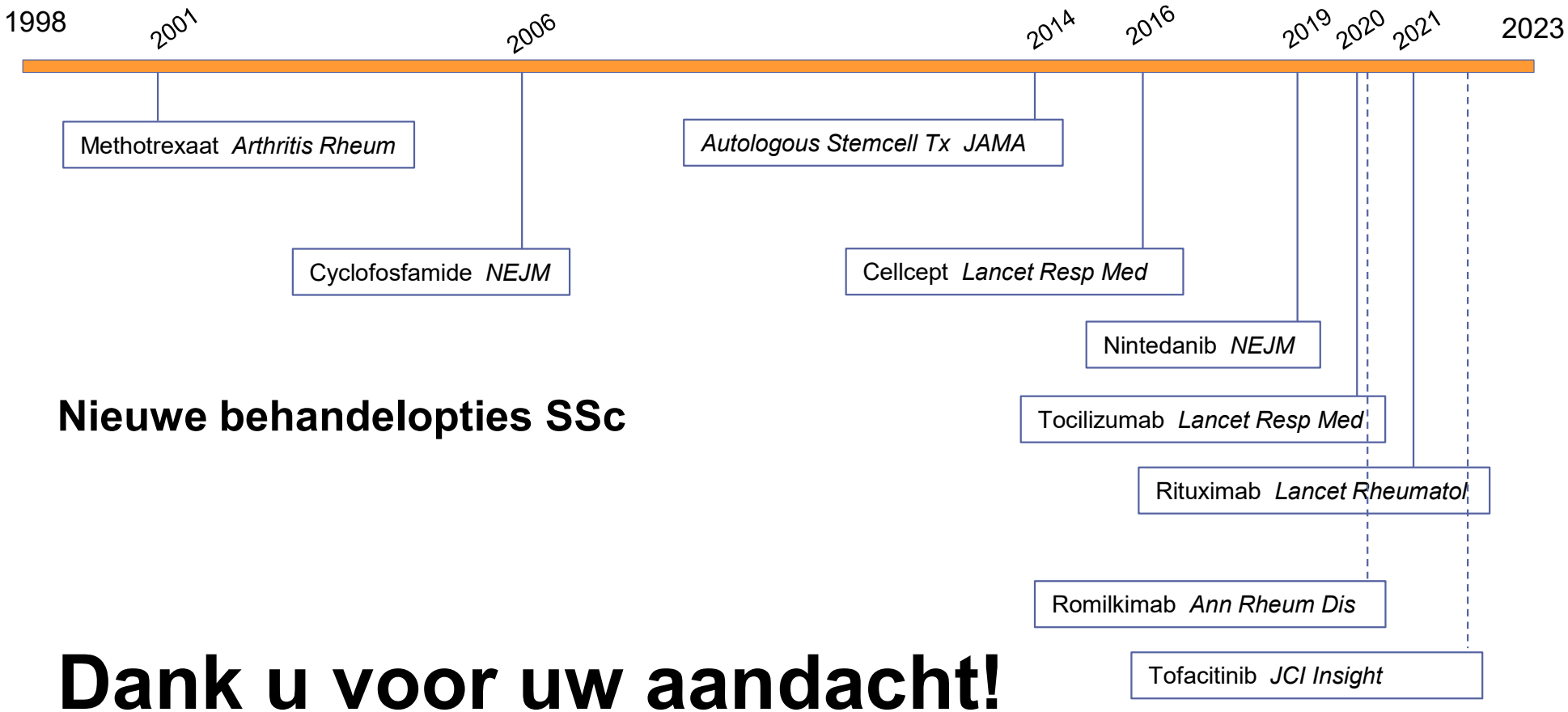
Samenwerking !!!

- Regionaal (MDO systeemziekten UMCG, samenwerking ILD centrum Martiniziekenhuis)
- Nationaal (ARCH, SSc werkgroep, UPSIDE trial)
- Internationaal (ERN Reconnet)

Work in progress: Richtlijn behandeling fenomeen van Raynaud (NIV/NVR)
Work in progress: Update zorgpad Systemische Sclerose (NVR)

2022 Standpunt NVR inzake voorschrijven van fosfodiesterase-5-remmers (PDE-5- remmers) voor behandeling van fenomeen van Raynaud secundair aan systemische auto-immuunziekten.

2021 Standpunt NVR/NVALT inzake doelmatig gebruik van fibroseremmers bij patienten met connective tissue disease related interstitial lung disease (CTD-ILD)



Nieuwe behandelopties SSc

Dank u voor uw aandacht!
Goed weekend!