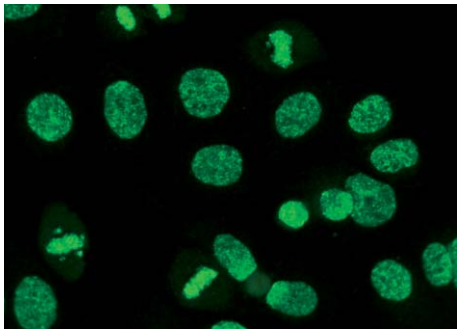
The significance of Anti-DFS70 in ANA diagnostics

IIFT is still the gold standard for ANA screening. Laboratory diagnostics are challenged by inconclusive IIFT ANA findings (e.g. fine granular with positive chromosome regions, see photo), where no classic autoantibodies (e.g. ENA, myositis or scleroderma antibodies) which constitute the underlying cause can be found using monospecific tests. These IIFT patterns can possibly be explained by antibodies against DFS70. Recently, some publications included the hypothesis that anti-DFS70 (if they occur exclusively) can serve as an exclusion marker for **systemic rheumatic autoimmune diseases (SRA)**, since anti-DFS70 are often present in healthy blood donors but only rarely occur in patients with rheumatic diseases. As a parameter which could exclude SRA quickly and easily would be very helpful for diagnosticians, we investigated this hypothesis by means of a literature meta-analysis.



Does a positive anti-DFS70 finding indicate that no SRA is present?

Several publications show that anti-DFS70 antibodies are present **in up to 11% of patients with SRA** (see table 1). Moreover, disease-specific ANA can be frequently detected at the same time. In a study with 439 SRA patients, **85% of sera with anti-DFS70 antibodies also contained relevant ANA** (Muro et al., Lupus 2008, see table 2). They were most frequently detected in systemic lupus erythematosus (SLE) and Sjögren's syndrome (SS), followed by dermatomyositis/polymyositis (DM/PM) and systemic sclerosis (SSc).

However, anti-DFS70 antibodies are only seldom detected in blood donors: On average, they occur **only in 8% of healthy patients** – in some blood donor panels they are **not detectable at all** (Ochs et al., 2000, Yamada et al., 2001, Ayaki et al., 2002, Okamoto et al., 2004, Watanabe et al., 2004, Bizzaro et al., 2007).

If an ANA pattern is observed using IIFT, a diligent monospecific ANA differentiation needs to be carried out in all cases – independently from the presence of antibodies against DFS70 (see figure 2). Only if no disease-relevant ANA are detected after using all means of special diagnostics may a positive anti-DFS70 result help to explain the observed IIFT pattern.

SRA	n	Prevalence anti-DFS70	Literature
SS	29	7%	Ochs et al., 2000
	30	7%	Watanabe et al., 2004
	71	11%	Muro et al., 2008
SSc	50	0%	Watanabe et al., 2004
	164	0.6%	Muro et al., 2008
SLE	55	2%	Watanabe et al., 2004
	124	6%	Muro et al., 2008
DM/PM	25	0%	Watanabe et al., 2004
	80	5%	Muro et al., 2008

Table 1: Anti-DFS70 in patients with SRA

SRA	n	Anti-DFS70 positive	Additional relevant ANA positive
SLE	124	7	7
SS	71	8	7
DM/PM	80	4	2
SSc	164	1	1
Total	**439**	**20**	**17**

Table 2: Anti-DFS70 and other ANA

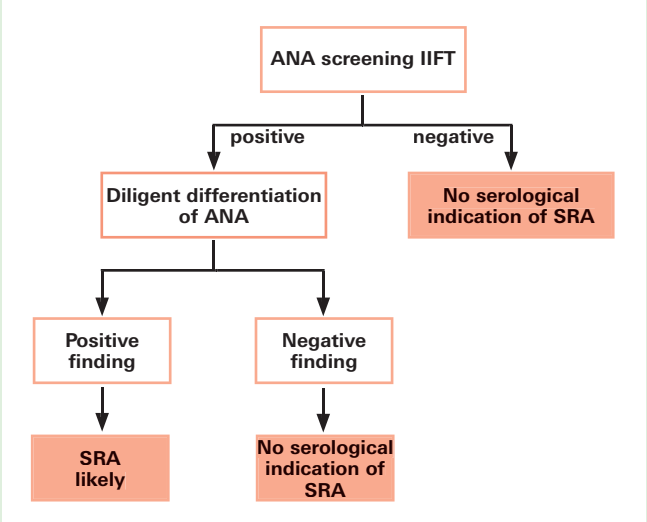
Abstract:

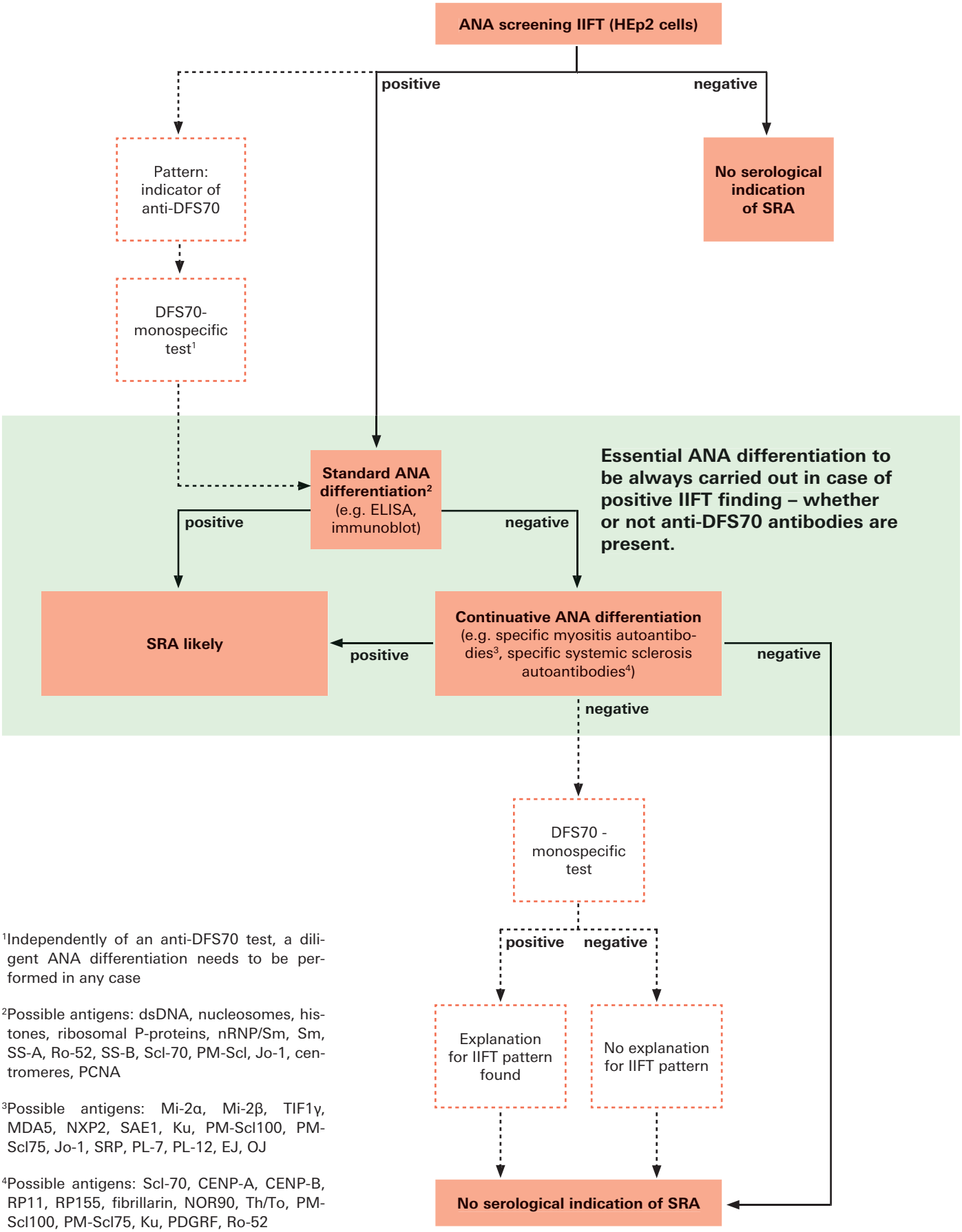
- Before a diligent ANA differentiation, no conclusions can be drawn by means of serology about the presence of SRA (independently from a positive anti-DFS70 finding).

  Anti-DFS70 antibodies are present in up to 11% of SRA patients – and in many cases disease-relevant ANA are observed at the same time as anti-DFS70.

- After a diligent ANA differentiation, either relevant ANA have been determined (finding: SRA likely) or not (finding: no serological indication of SRA).

A positive anti-DFS70 finding may in some cases help to explain ANA patterns which no disease-specific autoantibodies can be attributed to.





[1]Independently of an anti-DFS70 test, a diligent ANA differentiation needs to be performed in any case

[2]Possible antigens: dsDNA, nucleosomes, histones, ribosomal P-proteins, nRNP/Sm, Sm, SS-A, Ro-52, SS-B, Scl-70, PM-Scl, Jo-1, centromeres, PCNA

[3]Possible antigens: Mi-2α, Mi-2β, TIF1γ, MDA5, NXP2, SAE1, Ku, PM-Scl100, PM-Scl75, Jo-1, SRP, PL-7, PL-12, EJ, OJ

[4]Possible antigens: Scl-70, CENP-A, CENP-B, RP11, RP155, fibrillarin, NOR90, Th/To, PM-Scl100, PM-Scl75, Ku, PDGRF, Ro-52