



L'avez-vous Su ?

NO Olsson, Marnes, 14/12/2012

Prevalence and Sociodemographic Correlates of Antinuclear Antibodies in the United States

Minoru Satoh,¹ Edward K. L. Chan,² Lindsey A. Ho,³ Kathryn M. Rose,³ Christine G. Parks,⁴
Richard D. Cohn,³ Todd A. Jusko,⁴ Nigel J. Walker,⁴ Dori R. Germolec,⁴ Irene Z. Whitt,⁵
Patrick W. Crockett,[†] Brad A. Pauley,² Jason Y. F. Chan,¹ Steven J. Ross,²
Linda S. Birnbaum,⁶ Darryl C. Zeldin,⁴ and Frederick W. Miller⁵

Satoh et al, July 2012 : ANA prevalence

- Stored sera from 4,754 participants
- IIF on HEp-2 (INOVA) with 1:80 dilutions of sera
- Determination of specific antibodies:
immunoprecipitation of ^{35}S -methionine-labeled K562 cell extracts

Satoh et al, July 2012 : ANA prevalence

- In the US population 12 years and older : 13.8 %
- Increases with age
- Higher among females : 17.8 % vs 9.6 %
- Modestly higher in African Americans compared with whites
- Less common in overweight and obese individuals

Table 3. Frequencies of ANA patterns and specific autoantibodies among ANA-positive individuals*

Characteristic	ANA pattern			Specific autoantibodies		
	All nuclear (n = 560)	Nucleolar (n = 43)	All cytoplasm (n = 152)	Ro/La/Su/UI RNP (n = 46)	Ro (n = 23)	Su (n = 20)
Total (n = 670)	84.6 (81.1–88.2)	6.1 (3.6–8.6)	21.8 (18.3–25.4)	6.7 (4.3–9.1)	3.9 (1.9–5.9)	2.4 (1.0–3.8)
Age, years						
12–19	86.6 (78.7–94.5)	10.2 (1.7–18.6)†	18.1 (10.4–25.7)	2.0 (0.1–3.9)†	0.7 (0–1.5)†	1.3 (0–2.9)†
20–29	93.7 (88.6–98.8)	11.2 (3.2–19.2)†	16.0 (8.4–23.5)	3.7 (0–8.0)†	0	3.7 (0–8.0)†
30–39	85.3 (76.4–94.3)	1.1 (0–2.7)†	21.7 (11.3–32.0)	10.7 (2.0–19.4)†	7.6 (0.3–14.8)†	2.5 (0–6.5)†
40–49	86.5 (76.6–96.5)	6.9 (0–15.3)†	16.1 (6.1–26.1)†	3.1 (0–9.4)†	3.1 (0–9.4)†	0
50–59	77.9 (67.4–88.3)	5.1 (0–10.3)†	28.4 (18.0–38.7)	13.5 (4.7–22.3)†	6.4 (0.2–12.5)†	6.5 (0.8–12.3)†
60–69	81.7 (70.3–93.2)	4.3 (0–9.7)†	32.2 (19.8–44.5)	3.5 (0–8.4)†	2.6 (0–7.3)†	0.9 (0–2.4)†
70+	80.4 (72.7–88.1)	4.8 (0.5–9.1)†	22.9 (14.2–31.7)	6.3 (1.2–11.5)†	4.9 (0–10.0)†	0.2 (0–0.5)†
<i>P</i> for trend	0.02	0.15	0.04	0.05	0.03	0.33
Sex						
Male	84.5 (77.9–91.1)	8.5 (2.6–14.3)†	22.8 (16.0–29.6)	2.4 (0–5.1)†	2.0 (0–4.6)†	0.1 (0–0.3)†
Female	84.7 (80.2–89.3)	4.9 (2.6–7.2)	21.3 (16.1–26.6)	8.8 (5.5–12.2)	4.9 (2.1–7.6)	3.6 (1.5–5.7)
<i>P</i> ‡	0.96	0.26	0.77	0.004	0.14	0.001
Race/ethnicity						
Non-Hispanic white	86.3 (81.8–90.8)	4.9 (2.3–7.5)	20.2 (15.5–24.9)	5.4 (2.5–8.3)	4.1 (1.6–6.7)†	0.8 (0–1.9)†
Non-Hispanic black	79.5 (71.9–87.0)	6.2 (1.9–10.5)†	26.7 (18.6–34.7)	10.0 (4.0–16.0)	2.1 (0–5.1)†	5.8 (1.3–10.3)†
Mexican American	86.6 (80.2–93.0)	7.5 (1.7–13.3)†	20.3 (13.2–27.4)	9.6 (4.7–14.4)	2.9 (0–6.2)†	6.7 (2.5–10.9)†
Other	79.3 (65.7–92.9)	12.9 (1.0–24.8)†	27.3 (13.3–41.4)	8.6 (0.1–17.1)†	5.4 (0–12.2)†	5.8 (0–13.3)†
<i>P</i> ‡	0.38	0.44	0.41	0.26	0.67	0.01
Education						
0–8 years	65.5 (52.0–79.0)	3.1 (0.1–6.1)†	46.4 (31.6–61.2)	8.4 (1.1–15.7)†	3.4 (0–7.2)†	5.3 (0–11.1)†
9–11 years	81.3 (72.8–89.7)	6.0 (0–12.2)†	24.4 (14.1–34.8)	9.2 (1.7–16.6)†	1.7 (0–4.1)†	5.8 (0–12.3)†
High school diploma/GED	89.3 (83.0–95.6)	5.8 (2.5–9.0)	18.9 (10.6–27.2)	5.7 (1.7–9.6)†	3.6 (0–7.3)†	1.7 (0–3.4)†
Some college	84.3 (78.1–90.5)	7.0 (2.5–11.6)†	20.6 (14.0–27.3)	5.6 (0.7–10.5)†	5.3 (0.3–10.3)†	0.3 (0–0.8)†
College or postgraduate	89.7 (83.3–96.1)	6.3 (0.9–11.6)†	15.7 (8.5–22.9)	4.2 (0.4–8.1)†	3.2 (0–6.4)†	1.0 (0–3.1)†
<i>P</i> for trend	0.01	0.44	0.01	0.11	0.61	<0.001
Family income-to-poverty level ratio						
At or above poverty	86.2 (82.0–90.5)	5.3 (2.7–7.9)	20.3 (15.7–24.8)	6.1 (3.5–8.7)	3.8 (1.6–6.0)	1.4 (0.4–2.4)†
Below poverty	82.6 (71.8–93.4)	7.8 (0.9–14.7)†	22.8 (11.2–34.3)	9.5 (0.9–18.0)†	4.6 (0–11.5)†	5.2 (0–10.5)†
<i>P</i> ‡	0.56	0.49	0.71	0.47	0.83	0.15

* Values are the percent (95% confidence interval). The number of total subjects and the number of subjects in each group reflect the number of subjects within the sample, not an estimated count for the US population. ANA = antinuclear antibody; GED = General Educational Development.

† Estimate is considered unreliable because the relative standard error is >30%.

‡ By Wald's chi-square test.

Specific autoantibodies

Ro/La/Su/U1 RNP
(n = 46)

Ro
(n = 23)

Su
(n = 20)

Arthritis Rheum. 1984 Nov;27(11):1263-71.

**Characterization of a new antigen-antibody system (Su)
in patients with systemic lupus erythematosus.**

Treadwell EL, Alspaugh MA, Sharp GC

Clin Immunol Immunopathol. 1994 Oct;73(1):132-41.

**Characterization of the Su antigen, a macromolecular
complex of 100/102 and 200-kDa proteins recognized by
autoantibodies in systemic rheumatic diseases.**

Satoh M, Langdon JJ, Chou CH, McCauliffe DP, Treadwell EL, Ogasawara T,
Hirakata M, Suwa A, Cohen PL, Eisenberg RA, et al.

Arthritis Res Ther. 2006;8(4):R87.

Autoimmune targeting of key components of RNA interference

Jakymiw A, Ikeda K, Fritzler MJ, Reeves WH, Satoh M, Chan EK

- Cible des anti-Su : hAgo2
- Ago = protéines Argonautes
- Constituants des RISC : RNA-induced silencing complex
- Associés aux siRNA/miRNA (short/micro interfering RNA)
- hAgo2 s'associe à GW182 --> localisée dans les GW bodies
= P bodies

Arthritis Res Ther. 2006;8(4):110.

The RNA interference pathway: a new target for autoimmunity

Pruijn GJ.

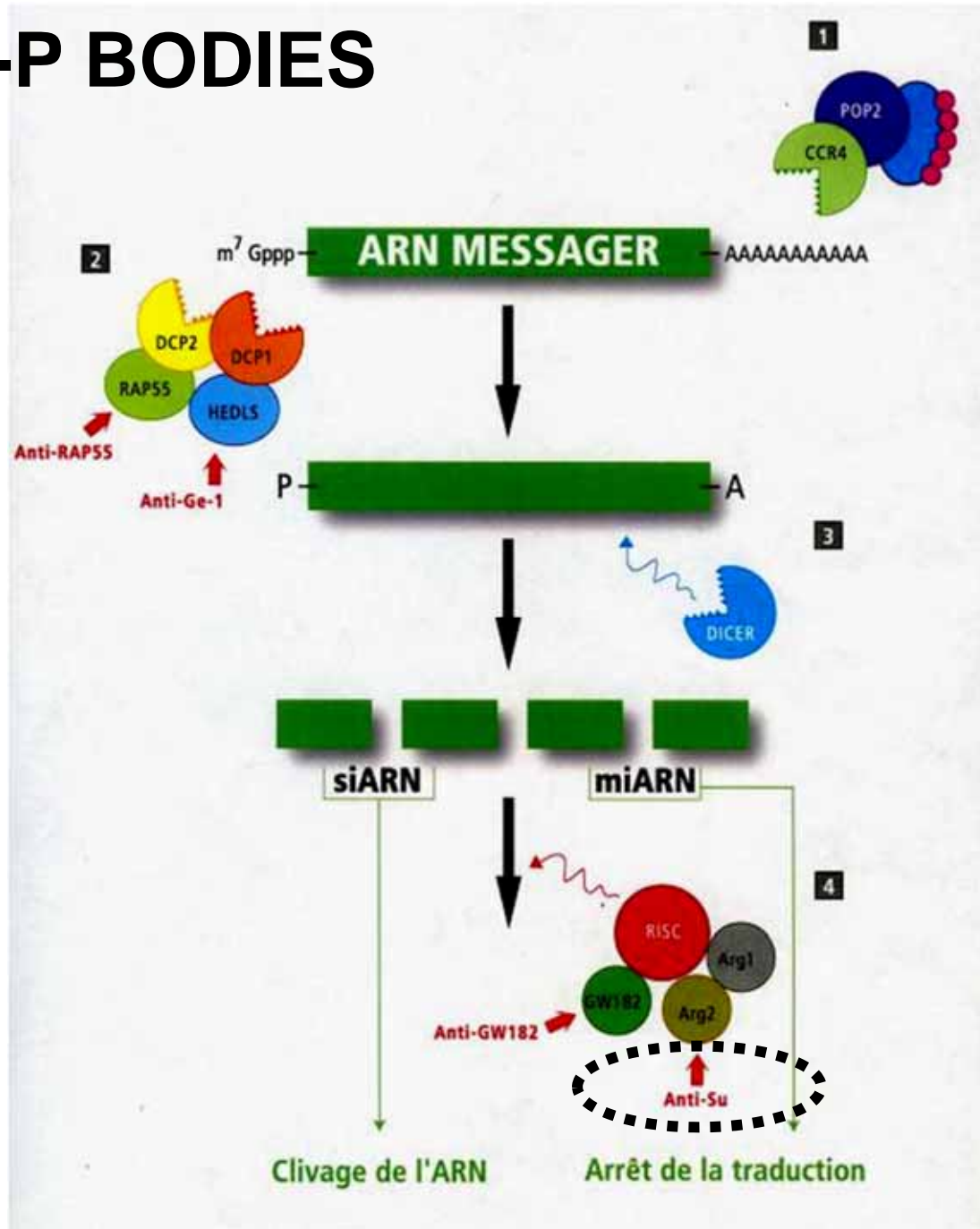
Table 1

Examples of autoantigens involved in RNA metabolic processes

Autoantigen	Ribonucleoprotein complex	Target protein(s)	Subcellular localization	Process
Sm	U snRNP	Sm proteins	Nucleoplasm	Pre-mRNA splicing
Ro	Y RNP	Ro60	Cytoplasm	RNA quality control
La	La RNP	La protein	Nucleoplasm	Maturation RNA Pol III transcripts
Th/To	RNase MRP, RNase P	Rpp38, Rpp25, Rpp20	Nucleoli	Pre-rRNA processing
Su	RISC	Ago, Dicer	Cytoplasm	RNAi

RISC = RNA-induced silencing complex; RNP = ribonucleoprotein particle.

ANTI-P BODIES



Ac anti-Su : intérêt clinique ?

- Treadwell, 1984 (*Arthritis Rheum*;27:1263-71) : LES
(Raynaud ↗, rash malaire, alopecie, arthrite ↘)
- Satoh, 1994 (*Clin Immunol Immunopathol*;73:132-41) :
 - LES : 17-21 %
 - Sclérodermie : 13-20 %
 - Synd de chevauchement : 22-40 %

MerSu