

# Prevalence of antinuclear antibodies (ANA) among healthy individuals with different nationalities in Qatar

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## ABSTRACT

ANA can be often found in healthy individuals and in many autoimmune diseases. However, its prevalence in healthy individuals is not well investigated in Asia and MENA region. Therefore, **aim** of this study was to estimate the prevalence of ANA among healthy individuals of different communities in Qatar. We **hypothesized** that ANA prevalence will be lower in nationalities with higher prevalence of infectious diseases.

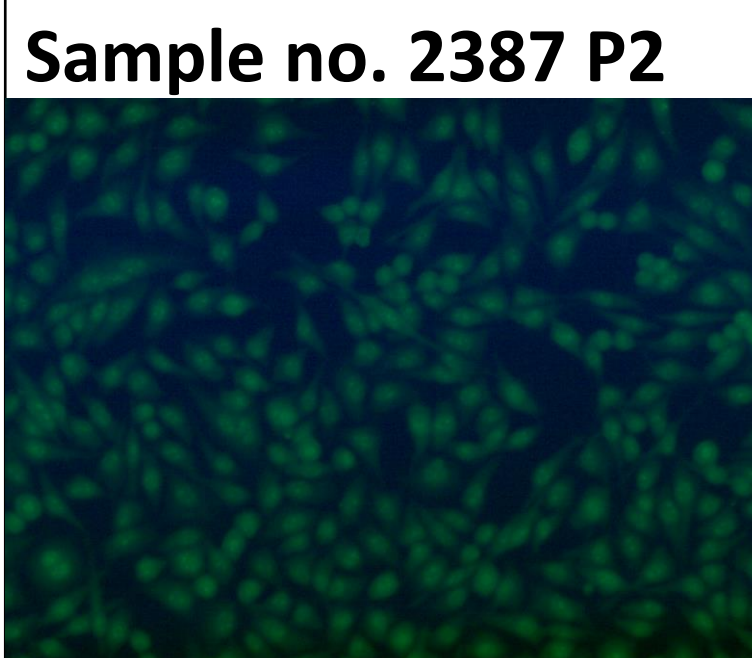
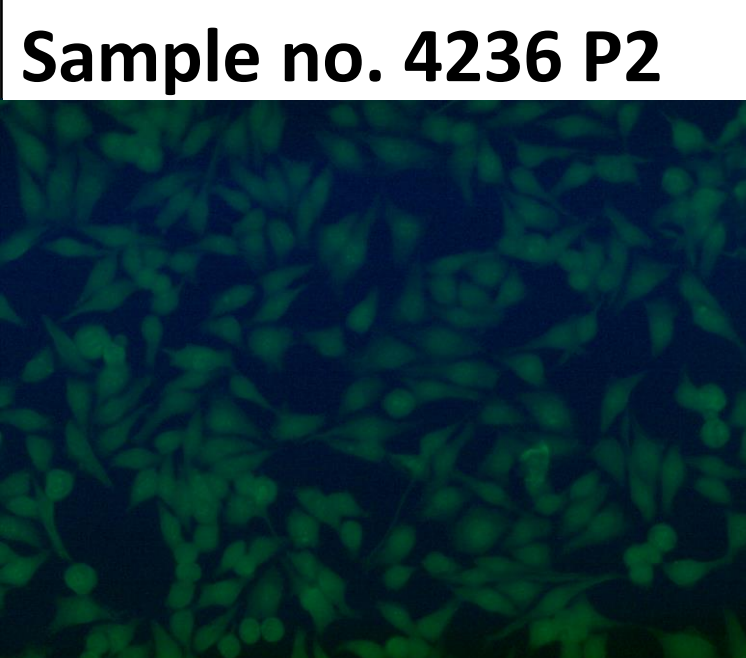
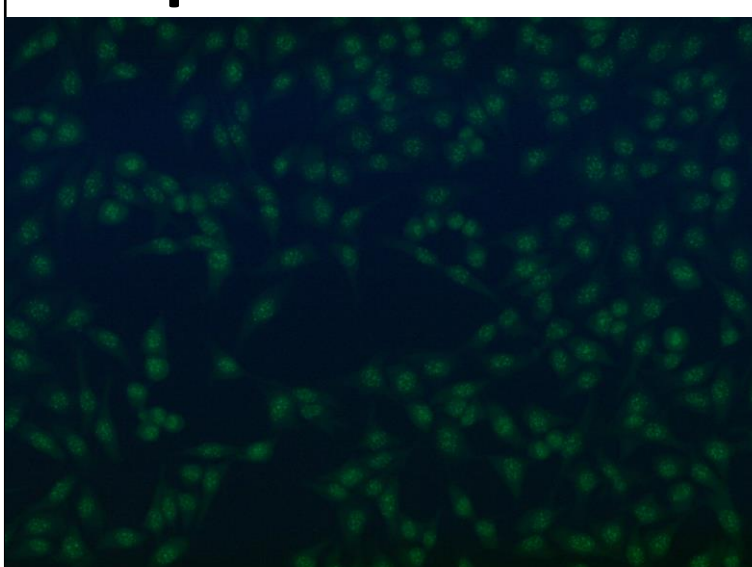
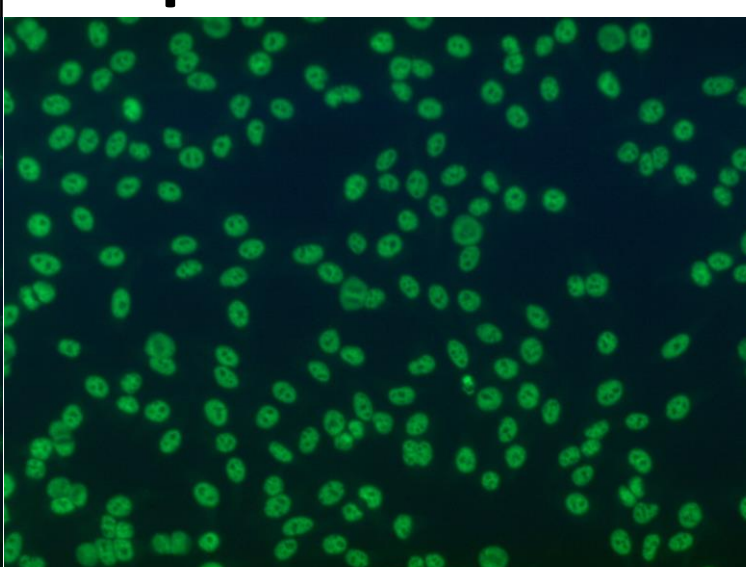
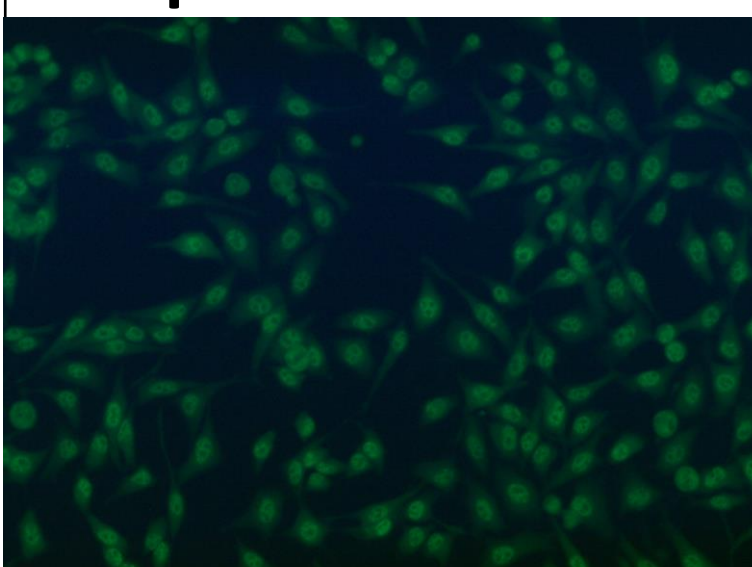
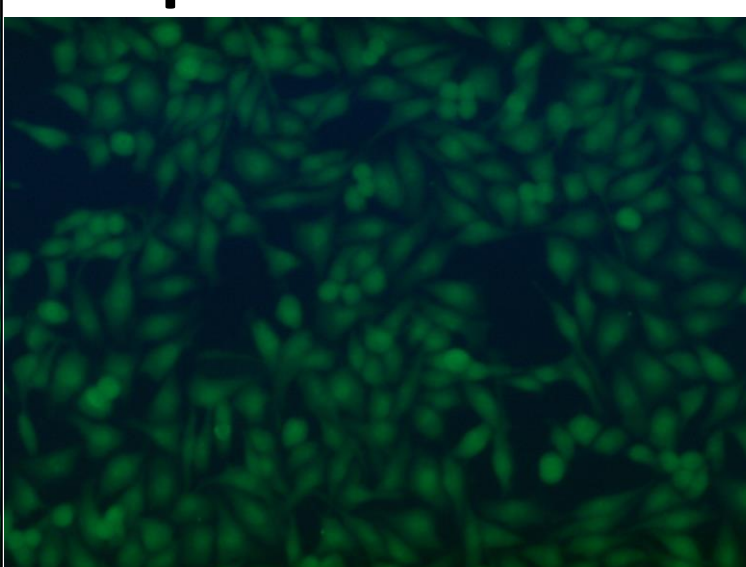
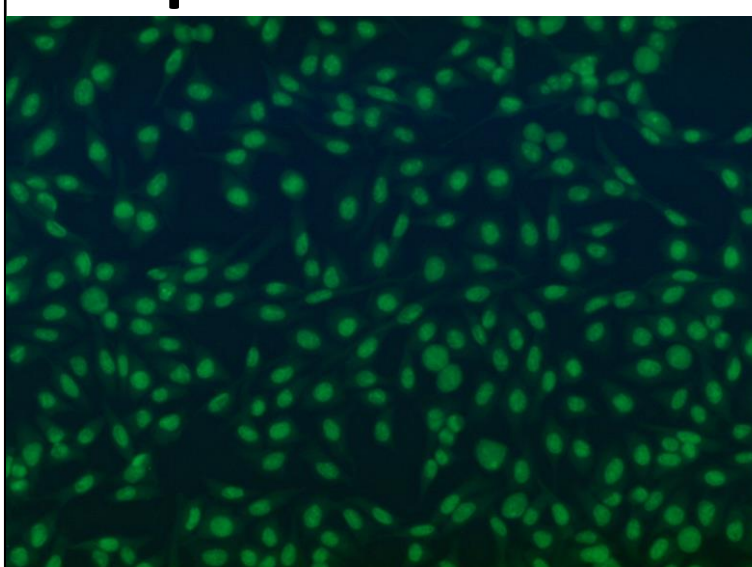
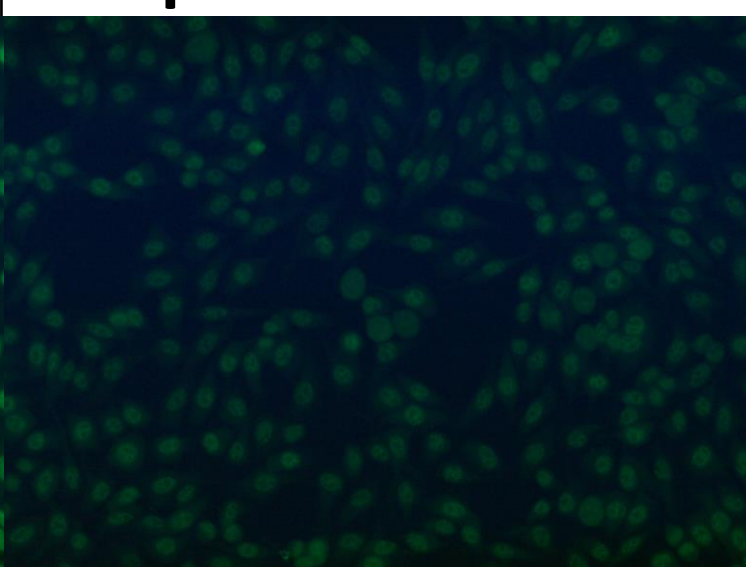
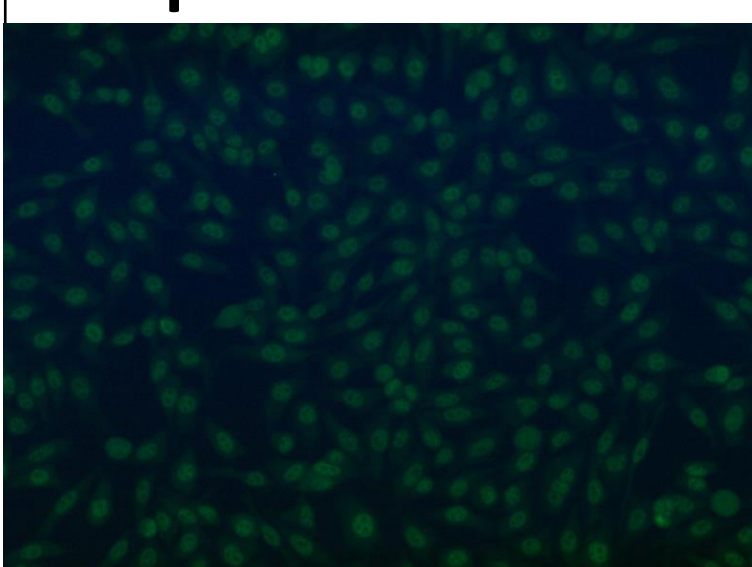
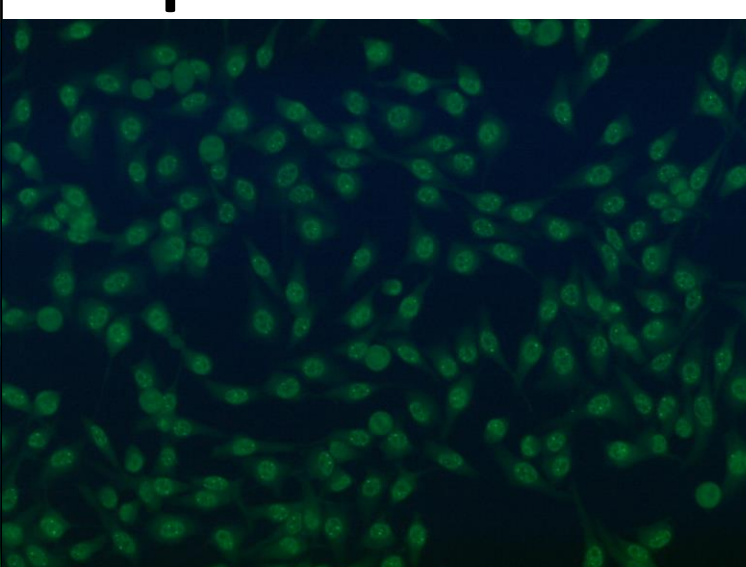
## INTRODUCTION

ANA are autoantibodies that attack nuclear antigens and destroy the cells. They are the hallmark of autoimmune diseases and are frequently found in patients with connective tissue diseases<sup>1</sup>. Studies have been done in some countries to find the prevalence of ANA in the healthy population, however, no studies have been done in Qatar. Qatar is a multinational country with 88% of the population being majorly from the south Asia and the MENA region and no significant data about the prevalence of ANA is found in any of those countries<sup>2,3</sup>.

## RESULTS

ANA prevalence among 2965 healthy individuals in Qatar is **0.33% and 0.74% with the borderlines.**

**Table 1: Nuclear pattern, IFA titer and ELISA titer of ANA positive samples**

Sample no. 2387 P2	Sample no. 4236 P2
	
Pattern: Speckled IFA titer: 1:80 ELISA titer: 1:80	Pattern: Non-specific IFA titer: 1:40 ELISA titer: 1:320
Sample no. 388 P1	Sample no. 3033 P2
	
Pattern: Centromere IFA titer: 1:170 ELISA titer: 1:80	Pattern: Speckled IFA titer: 1:2560 ELISA titer: 1:320
Sample no. 482 P1	Sample no. 1335 P2
	
Pattern: Speckled IFA titer: 1:320 ELISA titer: 1:1280	Pattern: Non-specific IFA titer: 1:40 ELISA titer: 1:80
Sample no. 1018 P2	Sample no. 1058 P2
	
Pattern: Speckled IFA titer: 1:320 ELISA titer: 1:40	Pattern: Speckled IFA titer: 1:80 ELISA titer: 1:320
Sample no. 721 P2	Sample no. 2483 P2
	
Pattern: Speckled IFA titer: 1:160 ELISA titer: --	Pattern: Mixed pattern IFA titer: 1:320 ELISA titer: 1:80

**Table 2: Number of ANA positive results according to nationality of blood donors**

Nationality	Number of positive samples	Prevalence (%)
India	2/309	0.64
Iran	2/109	1.83
Jordan	1/236	0.42
Qatar	3/483	0.62
Syria	2/395	0.51

## DISCUSSION & CONCLUSION

The prevalence of ANA is 0.34% with only the positives and 0.74% with the borderline results. The ANA prevalence of the Irani nationals residing in Qatar was the highest with 1.83% positivity. In comparison, the prevalence of ANA in Asian countries appeared to be lower than the Western countries, which supports our hypothesis of inverse relationship between the prevalence of infectious diseases and ANA. IFA revealed the speckled pattern to be the most common. We recommend using the new Dia. Pro ELISA kit for ANA screening as this kit showed high efficiency for detecting ANA in comparison to the gold standard IFA assay.

## REFERENCES

- Grygiel-Górniak, B., N. Rogacka, and M.J.R. Puszczewicz, *Antinuclear antibodies in healthy people and non-rheumatic diseases—diagnostic and clinical implications*. 2018. **56**(4): p. 243.
- Qatar's Fourth National Human Development Report: Realising Qatar National Vision 2030, The Right to Development*, M.o.D.P.a. Statistics, Editor. 2015, Ministry of Development Planning and Statistics: Qatar.
- De Bel-Air, F., *Demography, migration, and labour market in Qatar*. 2014.

## METHODOLOGY

- ✓ Sera was collected from a total of 2965 consented volunteer donors of age  $\geq 18$  years of different nationalities living in Qatar and attending Hamad Medical Corporation.
- ✓ Diagnostic Bioprobes Srl microplate ELISA kit was used to screen ANA IgG. Positive ELISA kit results were retested using the IFA IgG for the detection of ANA nuclear staining patterns.
- ✓ Analytical sensitivity of the two test methods were compared by endpoint titration.



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