regulation of oxidative metabolism and potential roles in development of systemic lupus erythematosus (SLE).

Methods CD4 +T lymphocytes isolated from 97 SLE patients, 30 RA patients, 10 AS patients and 20 healthy donors were used in our *in vitro* experiments. Total RNA of CD4 +T lymphocytes isolated from 4 SLE patients and 3 healthy donors were used to perform small RNA sequencing. Total RNA of CD4 +T lymphocytes transfected with synthetic tRF-3009 or negative control (a random sequence, single strand) were used to perform next generation sequencing. CD4 +T lymphocytes isolated from healthy donors were transfected with tRF-3009/negative control or tRF-3009 siRNA/si-NC *in vitro*, with/without IFN- α treatment, to analyze OCRROS and ATP concentration. Real-time qRT-PCR was performed to analyze expression of tRF-3009 and related gene expressions.

Results We have identified a series of tRFs expressed abnormally in SLE CD4 +T lymphocytes. Interestingly, almost all up regulated tRFs were from 3end of mature tRNA while down regulated ones were from 3end of tRNA precursors. We have found that expression of tRF-3009 was correlated with lupus nephritis (LN) and urine protein (PRO). The expression of tRF-3009 could be induced by IFN- α treatment *in vitro*. Knockdown of tRF-3009 by siRNA could rescue the metabolism change of CD4 +T lymphocytes induced by IFN- α . Transfection of tRF-3009 alone could up regulate oxidative phosphorylation of CD4 +T lymphocytes *in vitro*.

Conclusions This study identified a series of abnormally expressed tRFs existed in CD4 +T lymphocytes isolated from SLE patients. One of these small RNAs, tRF-3009 also enriched in kidney and correlated with occurrence of lupus nephritis. tRF-3009 anticipated in metabolism regulation, may play important roles in SLE pathogenesis.

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232 PREDICTORS OF HYDROXYCHLOROQUINE TREATMENT ADHERENCE AMONG PEOPLE WITH LUPUS

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Background Treatment adherence is associated with better disease control, improved morbidity and mortality and increased quality of life.¹ Studies examining treatment adherence predictors have varied in examined characteristics and results. This study analyzes demographic and socioeconomic factors, perceptions, and experiences influencing hydroxychloroquine (HCQ) treatment adherence among people with lupus. HCQ has long been used to treat lupus, and has been shown to reduce damage accrual and has protective effects on diseases such as diabetes and hyperlipidemia as well as overall survival in people with lupus.²

Methods Cross-sectional study data was obtained through the 2015–2016 Lupus Needs Survey, an online national needs assessment among 3022 adults self-reporting a lupus diagnosis. Univariate analyses were conducted using chi-square and simple logistic regressions among 21 variables, which were subsequently dichotomized. Variables with rates of missing values >15% of total sample were removed in further analysis.

Abstract 232 Table 1 Results of Binary Logistic Model of Predictors of HCQ Treatment Adherence

	Odds Ratio	95% Confidence Interval	p-value
Black	0.35	0.18–0.67	0.002*
Other (mixed, American Indian/Alaskan Native, Pacific Islander, or Middle Eastern)	0.35	0.14–0.85	0.021*
Moderate severity of lupus at diagnosis	0.57	0.31–1.03	0.061
HCQ improves/helps treat my symptoms	2.49	1.25–4.92	0.009*
Positive impression of HCQ	2.14	1.08–4.24	0.029*
Rheumatologist as primary doctor treating lupus	2.0	1.01–3.95	0.046*

*Significant p-value<0.05.

Next, 13 variables with a p-value<0.20 were entered into a binary logistic model using backwards stepwise selection.

Results 2028 individuals reported currently taking HCQ with 1581 (78.0%) individuals reporting taking the medication exactly as prescribed all of the time, 385 (19.0%) reporting some of the time, and 62 (3.1%) reporting sometimes or never taking HCQ as prescribed. People with lupus were twice as likely to adhere to HCQ if they reported having a rheumatologist as the primary doctor treating their lupus (p=0.046, OR=2.00) and more than twice as likely if they reported having a positive impression of HCQ (p=0.029, OR=2.14) or experienced improvement in treating their symptoms using HCQ (p=0.009, OR=2.49). Notably, African Americans and those indicating race as Other (mixed, American Indian/Alaskan Native, Pacific Islander or Middle Eastern) were 65% less likely to adhere to HCQ treatment (p=0.002, OR=0.35; p=0.021, OR=0.35, respectively).

Conclusions The study confirms the importance of experiential factors such as medication impression and patient-reported symptom improvement in HCQ treatment adherence. Additionally, results highlight the potential significance of having a specialist as the primary lupus doctor. This may be due to rheumatologists higher awareness of the value of HCQ for lupus patients compared to other providers. Further exploration is needed on cultural factors negatively influencing treatment adherence among certain racial groups, particularly African Americans and Other racial groups (mixed, American Indian/Alaskan Native, Pacific Islander or Middle Eastern). Treatment adherence is particularly important in lupus given the complex nature of the disease and fluctuation of disease activity, which may be exacerbated by poor adherence.

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233 AUTOANTIBODY-POSITIVE HEALTHY INDIVIDUALS CONSTRAIN T CELL PATHWAYS TO REGULATE AUTOIMMUNE DISEASE

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Background Anti-nuclear antibody (ANA) positivity is a principal feature of individuals with an autoimmune disease, yet up to one in five healthy individuals are ANA-positive (ANA+)