between 327 to 2,540 unique peptides for each of the 3 species. MABC proteomic analysis identified between 17-74 unique peptides for each of the 3 subspecies. Fifteen different mixed preparations of MAC and MABC were then subjected to LCMS analysis and compared against the proteome profiles already curated for the six strains. We accurately identified at least one NTM in the majority of the samples (10/15). In three samples (3/15), the NTM was not correctly identified; in two of the samples (2/15) we were unable to determine the identity of NTM within the preparation. Further database curation will be performed to hone these results. DISCUSSION/SIGNIFICANCE OF FINDINGS: Proteomic analysis of in vitro reference strains successfully demonstrated protein fingerprints specific to six common disease-causing strains of NTM. Such findings can be used to evaluate clinical samples enabling more efficient diagnostic specificity. Further research will focus on identification of NTM in sputum samples of infected patients.

## *Precision Medicine*

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### Patterns and impact of long-term glucocorticoid use on RA patients at risk for major adverse cardiac events

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ABSTRACT IMPACT: Glucocorticoid steroids are commonly used despite known dose-dependent cardiovascular toxicity, yet little is known about a) how patients with other cardiovascular risk factors use glucocorticoids, and b) how risks of glucocorticoid treatment might vary depending on a patient's baseline cardiovascular risk. OBJECTIVES/GOALS: Up to one-third of RA patients use long-term glucocorticoids (GCs) despite a known, dose-dependent association with increased risk of major adverse cardiovascular events (MACE). We aim to evaluate patterns of GC use among RA patients with other MACE risk factors (i.e. diabetes, smoking), and examine how GC use may potentiate these risk factors. METHODS/STUDY POPULATION: We used claims data from Veterans Health Administration to identify 6,090 RA patients with ≥1 rheumatology clinic visit during 2013-2017. We used logistic regression to evaluate associations between incident MACE between 2013-2018, recent long-term GC use, and 5 MACE risk factors: hypertension, diabetes, hyperlipidemia, smoking, and prior MACE. We included two-way interaction terms between GC use and each risk factor. We used a claims-based algorithm to define MACE as any of acute MI, ischemic stroke, TIA, sudden death, or coronary revascularization, between index date and 12/31/2018. We defined index date as first rheumatology visit after meeting RA diagnostic criteria, and recent long-term GC use as ≥90 days' supply dispensed over 2 years prior to index date. RESULTS/ANTICIPATED RESULTS: Among 2,884 eligible patients,1,553 (54%) had MACE risk factors, and 97 (3%) had prior MACE (Table 1). Overall, 16% of patients recently used long-term GC, compared to 17% of patients with MACE risk factors, and 22% of patients with prior MACE. Incident MACE occurred in 308 (11%) patients, 24% of whom had recent long-term GC use. Recent long-term GC use was independently associated with increased incident MACE (Table 2). While no interaction term was statistically significant overall, differences in odds of incident MACE were seen across levels of recent GC use for several risk factors, particularly diabetes (OR 2.10, 95% CI [0.93-4.77]), tobacco use (OR 2.88, 95% CI [1.16-7.14]) and prior MACE (OR 2.41, 95% CI [0.73-7.95]). DISCUSSION/SIGNIFICANCE OF FINDINGS: Long-term GC use is common among RA patients with MACE risk factors. In this cohort, 25% of patients with incident MACE had recently used long-term GC. Long-term GC use may potentiate effects of comorbidities like diabetes and smoking, disproportionately increasing MACE risk in certain patients.

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### Fast strain-encoded cardiac magnetic resonance detects immune checkpoint inhibitor associated cardiotoxicity

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ABSTRACT IMPACT: Advanced cardiac magnetic resonance imaging techniques can help to protect cancer patients from cardiotoxicity from immunotherapy with a more sensitive assessment of cardiac function with strain imaging for detection of abnormal cardiac function in the setting of normal left ventricular ejection fraction. OBJECTIVES/GOALS: Immune checkpoint inhibitors (ICI) are associated with fatal cardiotoxicity. Cardiac magnetic resonance (CMR) imaging can assess ICI-associated cardiotoxicity, but the utility of CMR strain imaging is unknown. We present a study of patients with ICI-associated cardiotoxicity evaluated with fast strain-encoded (fast-SENC) CMR. METHODS/STUDY POPULATION: This prospective study was approved by the institutional IRB and informed consent was obtained from 15 patients (5 patients with ICI-associated cardiotoxicity, 10 controls patients) between August 2018 and January 2020. All patients with ICI-associated cardiotoxicity had abnormal troponin values and evidence of cardiotoxicity on T2-weighted and/or delayed enhancement CMR images. All patients underwent standard CMR assessment with steady state free precession cine images, T2-weighted imaging, and delayed gadolinium enhancement imaging. Additionally, free-breathing SENC images were obtained and then processed by a team of blinded cardiovascular imaging specialists using Myostrain software (Morrisville, USA). RESULTS/ANTICIPATED RESULTS: Left ventricular ejection fraction (LVEF) was normal in both groups (ï‚³53%). Global longitudinal LV strain was significantly depressed in the ICI cardiotoxicity group versus controls (-12.8 ±3.2% vs. -16.6 ±1.9%, p=0.028). The average global circumferential LV strain was mildly abnormal (defined as strain > -17) in the ICI cardiotoxicity group and trended towards a higher value compared with controls (-16.0 ±2.6% vs -17.8 ±1.7%, p=0.103). The average number of dysfunctional segments (defined as strain > -10) was significantly

https://doi.org/10.1017/cts.2021.760 Published online by Cambridge University Press