**Figure S1**—Synovial TCRβ α diversity is associated with higher disease activity levels

**A** Synovium

**B** Blood

**C**

**D**

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**Figure S2**– Clonal expansion is most prominent in RA patients with lymphoid pathotype
Figure S3: Transcriptome and repertoire differences between varying joint conditions in GSE89408 are independent of some common sources of variation.
Figure S4—Synovial TCRβ α diversity is higher in lymphoid pathotype

A

Pathotype
Lymphoid
Ungraded
Fibroid
Myeloid

B

Synovium

C

Blood

D

Synovium

E

Blood

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Figure S5—Motif analysis of RA samples stratified by disease activity assessment scores

A

B

C

D

VASS
Low High

HAQ
Low High

Disease Duration
Low High

Inflammation
Low High
Figure S6– Motif analysis of RA samples classified by antibody levels

A

B

CCP
Low
High

RF
Low
High
Figure S7–Synovial TCRβ clonotypes are not wholly independent from peripheral circulation

A

B

C

TM
Blood
Synovium

TotalSum

Sharing
Blood
Synovium
Shared

Clone Count
Total Count

Blood
Synovium
Shared
Figure S8—β diversity metrics in TCR repertoire data from paired blood and synovium samples fail to delineate between pathotypes and disease activity.
**Figure S9**—TCR repertoire analysis of rheumatoid arthritis patients includes sequences matching annotated pathogen-specific TCRs

A  

**McPAS**

```
1
0
Edge Distance
```

B  

**VDJdb**

```
1
0
Edge Distance
```
Figure S10—TCR repertoire analysis of rheumatoid arthritis patients include annotated epitopes from the full McPAS database

A Dataset
GSE89408
PEAC
Both

Disease Category
Autoimmune
Pathogen
Multiple
Cancer
Allergy

B Cell Type
CD4 T
CD8 T

C Epitope
Known

D Reference
Observed

Epitope
Known

Data from Dataset
GSE89408
PEAC
Both

Reference
Observed

Pathogen
Cancer
Autoimmune
Allergy

CD4 T
CD8 T

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Figure S11—TCR repertoire analysis of rheumatoid arthritis patients include annotated epitopes from the VDJdb database.
**Figure S12**—Exact matches between TCR sequences recovered from RA synovium and annotated pathogen antigen-specific sequences

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<td>DENV</td>
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### Figure S13–Spike-matched epitopes recovered from RA synovium and are conserved in beta coronaviruses

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**FigureS14**–Spike-matched TCR sequences are found in TCRseq of PB from patients prior to SARS-CoV-2 emergence in a public dataset
Figure S15: TCRseq of SF from patients prior to SARS-CoV-2 emergence
Figure S16—Spike-matched TCR sequences are found in TCRseq of SF from patients prior to SARS-CoV-2 emergence