Objectives: To clarify the common pathogenesis of SLE and COVID-19, and find the appropriate treatment for Lupus and prevent COVID-19.

Methods: The transcription profile of SLE (GSE38351) and COVID-19 (GSE161778) were obtained from the Gene Expression Omnibus database (GEO). R package was used to find differentially expressed genes (DEGs) between lupus patients and HCs. After background adjustment and other pre-processing, DEGs were extracted from the peripheral blood of patients with COVID-19 at three different disease progression/moderate, severe and remission status). The Short Time-series Expression Miner (STEM) was used to cluster and compare average DEGs with coherent changes. The different expression patterns of time-series genes (TSGs) were also compared among these patients. GO and KEGG pathway enrichment analysis of TSGs and DEGs were performed by Metascape.

Results: Compared with HC, patients with SLE expressed 977 DEGs, which were mainly associated with defense response to virus, Epstein-Barr virus infection and response to interferon- γ (INF- γ) (Figure 1a). As for COVID-19 patients, there were 1584 DEGs obtained when compared with those of HCs ($P < 0.05$) (Figure 1b). Gene landscapes suggested the signatures of COVID-19 patients gradually changed during the disease progression, and gradually converge to HCs signatures. Time-series genes in the three stage of disease had different expression patterns and functions. A total of 959 TSGs in profile 3 showed a stable-stable-decreasing expression trend and significantly associated with INF signaling pathway (Figure 1c, 1d). Interestingly, patients with SLE and COVID-19 shared common pathways such as INF- γ related functional pathway.

Conclusion: INF- γ is an important common node of SLE and COVID-19. Controlling the production of INF- γ not only has therapeutic effect on SLE patients, but also may prevent COVID-19.

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Figure 1: (a) KEGG pathway and GO enrichment results for DEGs of SLE patients and HCs. (b) Venn diagram showing DEGs of patients with COVID-19 and HCs. Among them, covid19/402 represents severe patients, covid19/402 represents remission patients, and control represents HCs. (c) Expression patterns of time-series genes in COVID-19 and HCs. The colored profiles represent significant profiles. Colored in red represented statistically significant ($P < 0.05$). (d) KEGG pathway and GO enrichment results of the significant stable-stable-decreasing expression trend TSGs.

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POS1212 SARS-CoV-2 INFECTION AMONG PATIENTS WITH BEHÇET'S SYNDROME

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Background: Studies on SARS-Cov-2 in Behçet's syndrome (BS) patients are limited to two small case series from European centres.[1,2]

Objectives: We aimed to assess the prevalence of SARS-CoV-2 infection among Italian BS patients referring to Careggi University Hospital (Florence, Italy) and to evaluate the possible association between BS disease activity and treatment and the risk of Sars-CoV-2 infection among patients with BS.

Methods: A survey was conducted among 335 subjects diagnosed with BS and followed at Careggi University Hospital. Moreover, we conducted a case-control study. Cases were described in term of SARS-CoV-2 manifestation and prognosis, changes in disease activity, and in pharmacological therapies. Sars-CoV-2 negative controls matched 1:3 by sex, age and disease duration ± 5 years were randomly selected.

Results: Out of 335 BS patients, 12 declared to have/have had SARS-CoV-2 infection (3.6%). Eight were females (median age of 40 years), with a median duration of BS disease of 6 years; five had active disease. Nine patients reported fever, 9 myalgia/arthritis, 5 gastrointestinal symptoms, 5 anosmia/ageusia, 5 cough, 3 headache, 3 fatigue, 2 breathlessness, panic attacks and dizziness (one each). Before infection, patients were treated with corticosteroids, colchicine, hydroxychloroquine (HCQ), traditional DMARDs [azathioprine (n patients = 4), methotrexate (n=1)], and biologics DMARDs [adalimumab (n=6), infliximab (n=2), secukinumab (n=1), and canakinumab (n=1)]. Therapy was suspended for a median time of 33 days in 9patients and resumed after a median time of 5 days from negativation. Regarding SARS-CoV-2 treatment, most patients started or increased corticosteroids, whereas heparin and antipyretic drugs were used in 4 and 5 patients, respectively. Cases were comparable to controls in terms of disease manifestations, activity, and immunomodulating therapy, with the only exception of corticosteroids, whose daily dose was significantly higher in cases (Table 1).

Conclusion: Prevalence of SARS-CoV-2 infection among Italian BS patients is 3.6%, similarly to the Italian general population (4.2%). Disease activity at time of infection was not associated with an increased risk of SARS-CoV-2 infection. Most patients interrupted biologic DMARDs. However, use of DMARDs, seemed not to be associated with an increased risk of SARS-CoV-2 infection, while higher doses of corticosteroids resulted to be more common among patients with SARS-CoV-2 infection as compared to controls. No patient required hospitalization or died. Our experience shows encouraging data about BS patients who do not appear to be at greater risk of SARS-CoV-2 infection or complications than the general population.

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Table 1. Features of SARS-CoV-2+ cases and matched controls

	12 SARS-CoV-2+ CASES PRE-INFECTION	12 SARS-CoV-2+ CASES POST-INFECTION	36 CONTROLS	p-value*
Female sex	8 (66.7%)		24 (66.7%)	Matching variable
Median age	40 (IQR 31-45)		40 (IQR 32-44)	Matching variable
Median disease duration	6 (IQR 5-9)		6 (IQR 3-8)	Matching variable
Active disease (BDCAF ≥ 1)	5 (41.7%)	4 had disease relapse	24 (66.7%)	0.176
Immunomodulating therapy				
Corticosteroids –	8 (66.7%)	8 (66.7%)	12 (33.3%)	0.088
Median dosage (IQR)	5 (IQR 0-12.5)	6 (IQR 0-15)	0 (IQR 0-2.5)	0.010
Colchicine	2 (16.7%)	Continued	11 (30.6%)	0.469
HCQ	1 (8.3%)	Continued	1 (2.8%)	0.441
Traditional DMARDs	5 (41.7%)	1 interrupted	8 (22.2%)	0.263
Biologic DMARDs	10 (83.3%)	8 interrupted	27 (75%)	0.705
Disease involvement				
Mucocutaneous	5 (41.7%)		12 (33.3%)	0.731
Articular	5 (41.7%)	4 worsened	17 (47.2%)	1.000
Ocular	0		2 (5.6%)	n.a.
Vascular	0		0	n.a.
Neurological	3 (25%)		8 (22.2%)	1.000
Gastrointestinal	2 (16.7%)	1 worsened	6 (16.7%)	1.000

*p-value from Fisher exact test for unpaired data between first columns vs third columns

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POS1213 IMPACT OF THE COVID-19 PANDEMIC AND LOCKDOWN ON WELLBEING ON PATIENTS WITH RHEUMATIC DISEASES. RESULTS FROM THE REUMAVID STUDY (PHASE 1)

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