## Series GSE151161

Query DataSets for GSE151161

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| Status | Public on Jul 01, 2020 |
| Title | Blocking of the CD80/86 axis as a therapeutic approach to prevent progression to more severe forms of COVID-19 |
| Organism | Homo sapiens |
| Experiment type | Expression profiling by high throughput sequencing |
| Summary | In its more severe forms, COVID-19 progresses towards an excessive immune response, leading to the systemic overexpression of proinflammatory cytokines like IL6, mostly from the infected lungs. This cytokine storm can cause multiple organ damage and death. Consequently, there is a pressing need to identify therapies to treat and prevent severe symptoms during COVID-19. Based on previous clinical evidence, we hypothesized that inhibiting T cell co-stimulation by blocking CD80/86 could be an effective therapeutic strategy against progression to severe proinflammatory states. To support this hypothesis, we performed an analysis integrating blood transcriptional data we generated from rheumatoid arthritis patients treated with abatacept -a CD80/86 costimulation inhibitor- with the pathological features associated with COVID-19, particularly in its more severe forms. We have found that many of the biological processes that have been consistently associated with COVID-19 pathology are reversed by CD80/86 co-stimulation inhibition, including the downregulation of IL6 production. Also, analysis of previous transcriptional data from blood of SARS-CoVinfected patients showed that the response to abatacept has a very high level of antagonism to that elicited by COVID-19. Finally, analyzing a recent single cell RNA-seq dataset from bronchoalveolar lavage fluid cells from COVID-19 patients, we found a significant correlation along the main elements of the C80/86 axis: CD86+/80+ antigen presenting cells, activated CD4+ T cells and IL6 production. Our in-silico study provides additional support to the hypothesis that blocking of the CD80/CD86 signaling axis may be protective of the excessive proinflammatory state associated with COVID-19 in the lungs |
| Overall design | Whole RNAseq Blood Samples of patients treated with abatacept at week 0 and week 12 |
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| Citation missing | *Has this study been published? Please login to update or notify GEO.* |
| Submission date | May 25, 2020 |
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|---|---|
| Platforms (1) | GPL24676 Illumina NovaSeq 6000 (Homo sapiens) |
| Samples (76) | GSM4567526 Patient 1 week0 |
| More... | GSM4567527 Patient 1 week12 |
| | GSM4567528 Patient 2 week0 |

**Relations**

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|---|---|
| BioProject | PRJNA634938 |
| SRA | SRP263603 |

| Download family | Format |
|---|---|
| SOFT formatted family file(s) | SOFT |
| MINiML formatted family file(s) | MINiML |
| Series Matrix File(s) | TXT |

| Supplementary file | Size | Download | File type/resource |
|---|---|---|---|
| GSE151161_Raw_counts.csv.gz | 3.0 Mb | (ftp)(http) | CSV |

SRA Run Selector

*Raw data are available in SRA*

*Processed data are available on Series record*