In this manuscript, Dr. Patrick and colleagues conducted an extend research to the GWAS meta-analysis to a large psoriatic arthritis (PsA) and cutaneous-only psoriasis (PsC) dataset (N=3674 and 3566 respectively). In this study, the authors apply integrative bioinformatics analysis to demonstrate epigenetic signals and pharmacogenomics data would be significantly useful to identify causal or functional variants associated to PsA or PsC. This strategy or hypothesis has been widely applied when we found majority of GWAS significant hit cannot be mapped to functional loci. The study was performed rigorously and the findings are interesting. I only have some minor statistic concerns:

1. **Why 10-4 was applied in the study? What’s the influence to the conclusion if 10-3 or 10-5 were applied.**
2. **Why only H3K27ac were analyzed in the study, not WGBS, or some other histone modification data? Whether the conclusion is consistent if applying other kinds of histone modification dataset?**
3. **When the authors map enhancer to cell types, whether multiple test correction was conducted? How many cell types were enrolled in this study totally?**
4. **It will be helpful to list all the 165 suggestive significant loci as the supplementary or as the main table including the detail allele frequency etc.**
5. **Why two different references were applied in imputation and phasing? Why the data was conducted phasing operation? Any statistical analysis to require the phase status?**
6. **Why <500kb was applied in the analysis “genomic distance between any two suggestive significant markers) against H3K27ac chromatin marks”? What’s the difference if 50K was applied?**
7. **Why indirect meta-analysis, not direct meta-analysis was applied in this study? What’s the difference result to compare these two method?**
8. **I hope to see the raw table for Fisher’s exact test for chondrogenic differential cells and osteoblasts cell type test**
9. **In this part, I think the more detail should be shown: “Many of the drugs (celecoxib, diclofenac, indomethacin and piroxicam) are nonsteroidal anti-inflammatory drugs (NSAIDs), but there are also three immunosuppressive drugs (azathioprine, cyclosporine and methotrexate) and two corticosteroids (dexamethasone and prednisone), used to treat psoriasis in general”. How many? What’s the proportion? If the conclusion is not easy to make, I suggest the author can put certain part into discussion.**
10. **To show the GEO ID for osteoblast cell differentiation will be helpful in the manuscript, not only the reference. I don’t understand “used the most significant probeset when multiple were available”**
11. **Figure 1d should be change to dot box plot or with error bar.**
12. **Figure 1c is interesting. Only connected genes and drugs were shown? The separated genes/drugs were removed?**