Unraveling Biophysical Interactions of Radiation Pneumonitis in Non-Small-Cell Lung Cancer via Bayesian Network Analysis

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Appendix C: An Example to Identify Appropriate Biophysical Interactions for RP2 Prediction

Based on the MB of RP2, a TGF-β biophysical pathway may include tgf_beta1_Rs1800469 and smad3_Rs6494633 from the category of SNP; miR-191-5p, miR-223-3p from the category of miRNA; IL2, IL15 from cytokines before and during the treatment; Mean_Lung_Dose, V5, V20 from dosimetric information, and its biophysical rules included all the relationships/connections between every two of the above variable categories. If a relationship could be identified from literature or influence of time order, it was considered as an inclusion connection; otherwise, it was an exclusion connection. For instance, a link from dose information to the slope of a cytokine change during treatment was considered as an inclusion connection. However, a link from Mean_Lung_Dose to a SNP was an exclusion connection, as radiation treatment cannot influence SNPs before radiotherapy.