SPTBs in women that occurred at 32 weeks gestation or earlier and those at 34 or greater weeks might be caused by different mechanism that different genes may be involved. In the new experiments, we divided the samples (326 samples in total) into two groups according to the clinical records. One is with gestation time 32 weeks or earlier and 37 weeks or more, another is the other one is with 34 or greater weeks.

In the two datasets, we implemented the seven regularized logistic regression methods for feature selection and classification. We identified biomarkers in each dataset. The genes (15 in total) contained in the dataset with gestation time 32 weeks or earlier and 37 weeks or more are selected as potential biomarkers, and another 13 genes in total in the dataset with gestation at 34 or greater weeks are identified as biomarkers. The results of corresponding overlaps are shown in the following Figure 1 and the details of biomarker genes are shown in Table 1.

By comparing with our selected biomarkers, it shows that 10 genes are included in the 20 biomarkers we selected in manuscript, as shown in Figure 2. That is to say, the 10 biomarker genes identified by separating the samples into two groups according to their gestation age are included in our identified biomarkers. What’s more, the detailed biomarkers information is shown in Table 2. This reflects the stability of the biomarker identification methods we used.

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| Fig10compare_21 |
| Figure 1. The overlap of biomarkers when gestation time at 32 weeks or earlier and at 34 or greater weeks. |

Table 1. The details of overlapping features between two subsets when gestation time at 32 weeks or earlier and at 34 or greater weeks.

|  |  |  |
| --- | --- | --- |
| **Names** | **Total** | **Elements** |
| 32 weeks or earlier;  34 or greater weeks | 1 | *MIR601* |
| 32 weeks or earlier | 14 | *MFSD4A MCM2 FASTKD5 PLD4 KIR3DL1 ASRGL1 ATP8A2 CALB1 YTHDF2 ZW10 CDR2L ACADVL CSTF1 GOLGA7* |
| 34 or greater weeks | 12 | *C19orf33 PCDHGB5 PIH1D2 TARS ANGPT1 VAMP2 ZNF500 GLYR1 SGSH CDKN2A-DT SUOX PLEC* |

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| Fig10compare_3 |
| Figure 2. The overlap of biomarkers when gestation time at 32 weeks or earlier, at 34 or greater weeks and our results in manuscript. |

Table 2. The details of overlapping features among 32 weeks or earlier, 34 or greater weeks and our results in manuscript.

|  |  |  |
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| **Names** | **Total** | **Elements** |
| 32 weeks or earlier;  34 or greater weeks | 1 | *MIR601* |
| 32 weeks or earlier;  our results | 4 | *MFSD4A MCM2 ASRGL1 GOLGA7* |
| 34 or greater weeks;  our results | 6 | *TARS VAMP2 GLYR1 CDKN2A-DT PCDHGB5 PLEC* |
| 32 weeks or earlier | 10 | *FASTKD5 PLD4 ZW10 ACADVL KIR3DL1 ATP8A2 CALB1 YTHDF2 CSTF1 CDR2L* |
| 34 or greater weeks | 6 | *ANGPT1 ZNF500 SGSH SUOX C19orf33 PIH1D2* |
| our results | 10 | *CLASRP PRKAG1 TRAV4 PAICS MIR3117 ZNF284 FBXO31 FADS2 ZNF649-AS1 SPRTN* |