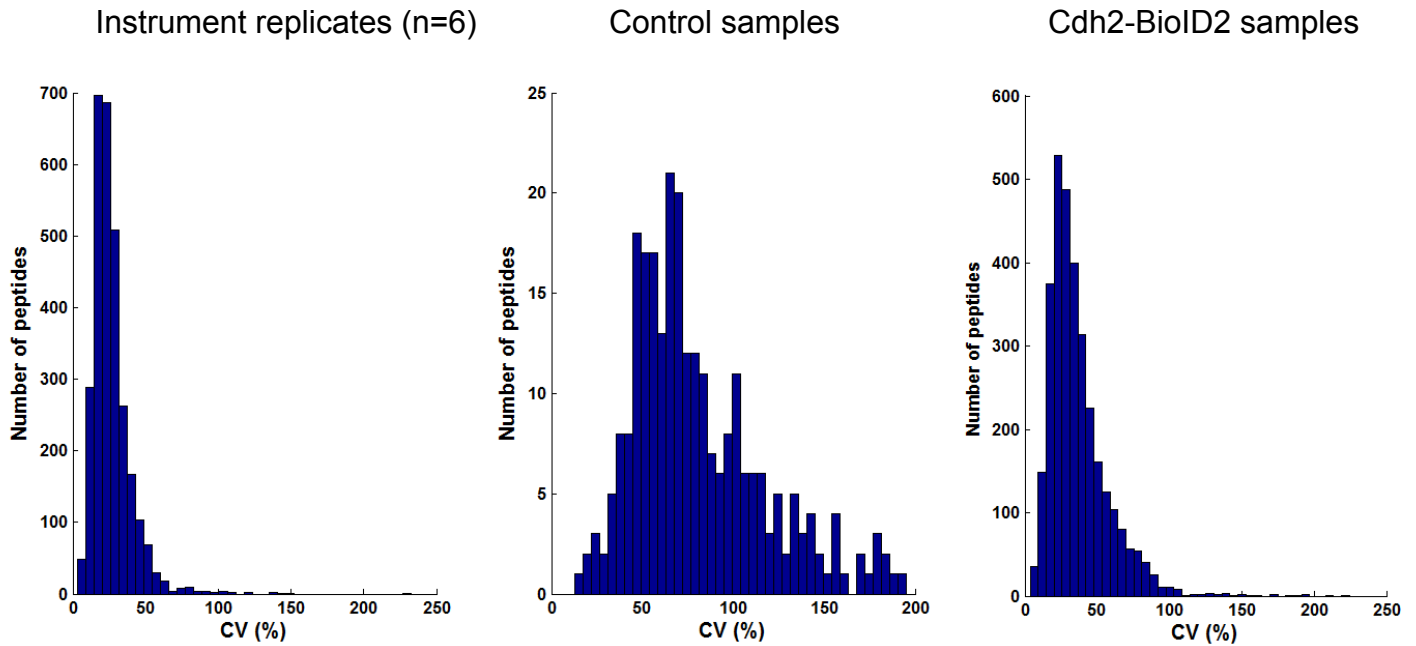
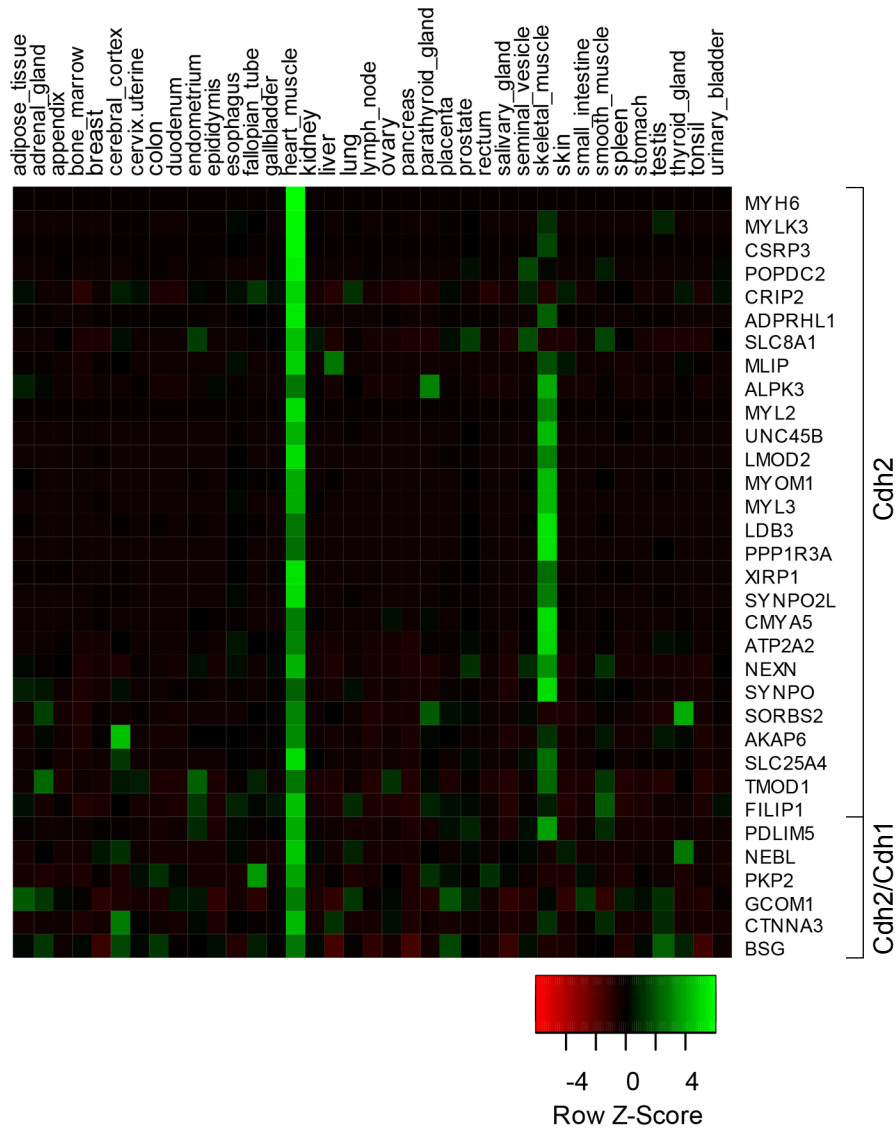


**Figure S1.** (accompanies Fig 3) Time course of biotin labeling. Cardiomyocytes infected with Cdh2-BioID2 adenovirus were fixed 6, 24 and 48 hours after biotin addition. Cells were stained for F-actin, CTNNA1 and biotin (streptavidin, SA). CTNNA1 (magenta) and SA (green) channels are shown in merge. Scale bar is 10  $\mu$ m.

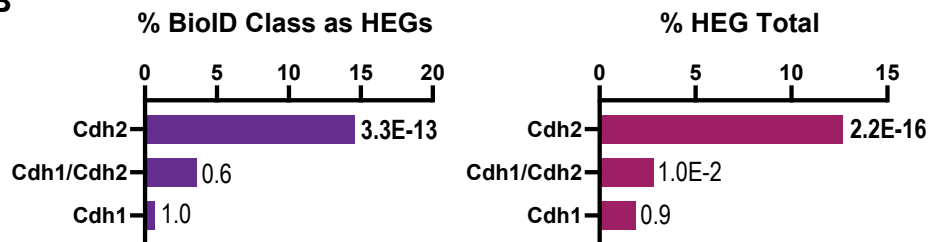


**Figure S2.** (accompanies Fig 4). A. Coefficient of variance (CV) for mass spec analysis of instrument replicates, control samples and experimental (Cdh2-BioID2) samples. B. Integrin subunit mRNA expression in primary cardiomyocytes determined by quantitative PCR. Graph shows the average mRNA copies per cell of Itgb1, Itgb3, Itgb5, Itga1, Itga5 and Itga7. Errors bars show standard deviation from two replicates. Average RNA copy number is shown above each bar.

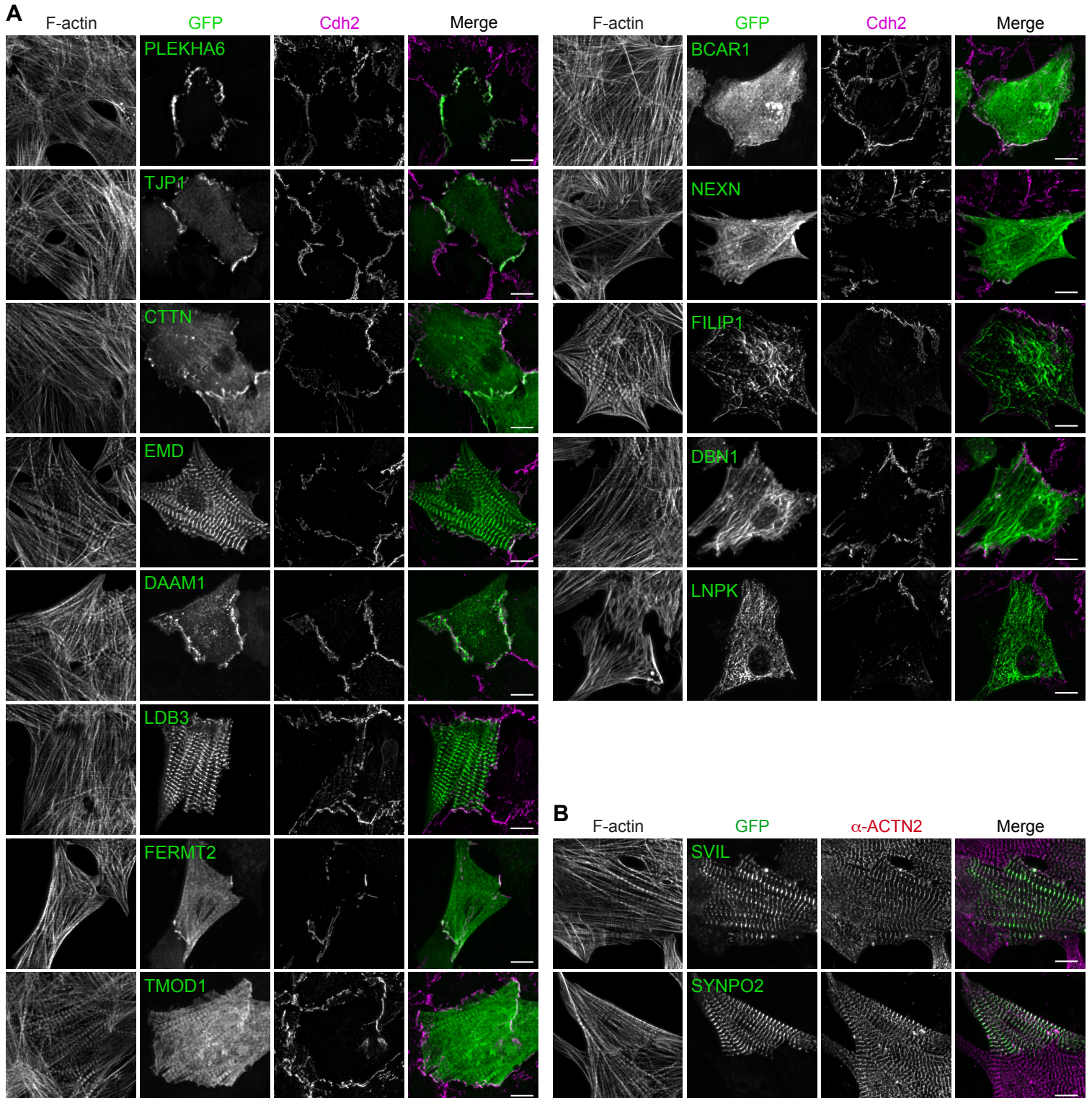
**A**



**B**



**Figure S3.** (accompanies Fig. 5) A. Heat map of CDH2 or CDH2/CDH1 expression profiles in human tissues. B. Left, percentage of each BioID class as HEGs. Right, fraction of those BioID HEGs in the total HEG population. P value of Fisher's exact test shown.



**Figure S4.** (accompanies Fig. 7). A. CDH2 interactome protein localization. Cardiomyocytes transfected with GFP-tagged Cdh2-BioID hits and stained for Cdh2 and F-actin. Individual and merged GFP (green) and CDH2 (magenta) channels shown. Note that LNPK was tagged with mCherry and DBN1 (paralog of DBNL) was tagged with YFP. Both fusion protein channels were pseudo-colored green for consistent comparison. Tested but not shown are PHLDB1, SQSTM1, TLN1, PARVA, TRIM55, CSRP1, DPYSL3 and COBLL1. All formed aggregates or were cytoplasmic when expressed in cardiomyocytes. B. SVIL and SYNPO2 localize to Z-discs. Cardiomyocytes transfected with EGFP-tagged SVIL and SYNPO2. Cells were fixed 24 hours post-transfection and stained for ACTN2 and F-actin. Scale bar is 10  $\mu$ m for A and B.

**Table S1**

[Click here to Download Table S1](#)

**Table S2**

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**Table S3**

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**Table S4. (accompanies Fig. 6) List of unconnected Cdh2-BioID2 hits**

PDLIM3  
ARHGAP1  
ARHGAP23  
CAST  
EHBP1  
EHBP1L1  
JCAD  
PDAP1  
PHACTR2  
PLEKHA6  
SHB  
SLC30A1  
SLITRK4  
SLK  
ADPRHL1  
ALPK3  
CDV3  
CMYA5  
CRIP2  
ELOB  
FILIP1  
FILIP1L  
FRMD4A  
ITM2B  
ITM2C  
JPH2  
LMOD2  
LNPK  
MAP6  
MAST4  
MLIP  
MYLK3  
OBSL1  
PCDH7  
PGAM2  
PPP1R12B  
PURB  
SHROOM1  
SLC25A4  
STBD1  
SYNPO2L  
TBCB  
TMCC1  
UBAP2L  
UNC45B  
MURC  
GCOM1  
PALM2-AKAP2  
CCDC9B  
C4orf54  
GM11639  
C10ORF71