**PROJECT 1:**

RNA samples: CARDIAC FIBROBLAST (CF)

Cell lines: Isogenic (ISO), ROBO1 knock-out (KO), ROBO2 KO, SLIT2 KO CFs

GOAL1: (ISO vs KOs)

* Compare ISO vs ROBO1 KO; ISO vs ROBO2 KO, ISO vs SLIT2 KO
* Is gene KO impacting cell pathways in CF?

GOAL2: (CTRL vs DX)

* Compare CF non-treated vs treated with DOX (ISO vs ISO-DX; ROBO1 vs ROBO1-DX; ROBO2 vs ROBO2-DX; SLIT2 vs SLIT2-DX)
* Is gene KO differentially impacting cell pathways induced by DOX treatment?: compare differential gene expression/pathways activated in ISO vs KOs in the context of DOX treatments

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| **Samples** | **Project** | **samples.Pr** | **Cell\_type** | **Dox\_treatment** |
| ISO | Pr1 | Pr1\_ISO | ISO CF | No |
| ISO\_DOX | Pr1 | Pr1\_ISO\_DOX | ISO CF | Yes |
| ROBO1 | Pr1 | Pr1\_ROBO1 | ROBO1 KO CF | No |
| ROBO1\_DOX | Pr1 | Pr1\_ROBO1\_DOX | ROBO1 KO CF | Yes |
| ROBO2 | Pr1 | Pr1\_ROBO2 | ROBO2 KO CF | No |
| ROBO2\_DOX | Pr1 | Pr1\_ROBO2\_DOX | ROBO2 KO CF | Yes |
| SLIT2 | Pr1 | Pr1\_SLIT2 | SLIT2 KO CF | No |
| SLIT2\_DOX | Pr1 | Pr1\_SLIT2\_DOX | SLIT2 KO CF | Yes |
| **Pr1-Cell type: CARDIAC FIBROBLAST (CF)** | | |  |  |

**PROJECT 2:**

RNA samples: CARDIOMYOCYTES (CM)

Cell lines: ISO, ROBO1 KO, ROBO2 KO, SLIT2 KO CMs

Co-culture: each CM line was co-cultured with ISO CF, ROBO1 KO CF, ROBO2 KO CF, SLIT2 KO CF, or no co-cultured (CM only)

GOAL1: (ISO vs KOs)

* Compare ISO vs ROBO1 KO; ISO vs ROBO2 KO;ISO vs SLIT2 KO (no co-cultured, CM only)
* Is gene KO impacting cell pathways in CM?

GOAL2: (CTRL vs DX)

* Compare CM non-treated vs treated with DOX (ISO vs ISO-DX; ROBO1 vs ROBO1-DX; ROBO2 vs ROBO2-DX; SLIT2 vs SLIT2-DX) (no co-cultured, CM only)
* Is gene KO differentially impacting cell pathways induced by DOX treatment?: compare differential gene expression/pathways activated in ISO vs KOs in the context of DOX treatments

GOAL3: (ISO vs KOs + CO-CULTURE WITH CF)

* Compare CMs no co-cultured vs CM co-cultured with ISO/ROBO1/ROBO2/SLIT2 CF
* Does co-culture with CF impact cell pathways in CM? What is the contribution of gene KO?

GOAL4: (CTRL vs DX + CO-CULTURE WITH CF)

* CM treated with DOX: compare no co-cultured and co-cultured with ISO/ROBO1/ROBO2/SLIT2 CF
* Does co-culture with CF impact cell pathways induced by DOX treatment in CM? What is the contribution of gene KO?

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| **Samples** | **Project** | **samples.Pr** | **Cell\_type** | **CO-CULTURED** | **Dox\_treatment** |
| ISO | Pr2 | Pr2\_ISO | ISO CM | NO | No |
| ISO\_DX | Pr2 | Pr2\_ISO\_DX | ISO CM | NO | Yes |
| ISO\_ISO | Pr2 | Pr2\_ISO\_ISO | ISO CM | ISO CF | No |
| ISO\_ISO\_DX | Pr2 | Pr2\_ISO\_ISO\_DX | ISO CM | ISO CF | Yes |
| ISO\_R1 | Pr2 | Pr2\_ISO\_R1 | ISO CM | ROBO1 KO CF | No |
| ISO\_R1\_DX | Pr2 | Pr2\_ISO\_R1\_DX | ISO CM | ROBO1 KO CF | Yes |
| ISO\_R2 | Pr2 | Pr2\_ISO\_R2 | ISO CM | ROBO2 KO CF | No |
| ISO\_R2\_DX | Pr2 | Pr2\_ISO\_R2\_DX | ISO CM | ROBO2 KO CF | Yes |
| ISO\_S2 | Pr2 | Pr2\_ISO\_S2 | ISO CM | SLIT2 KO CF | No |
| ISO\_S2\_DX | Pr2 | Pr2\_ISO\_S2\_DX | ISO CM | SLIT2 KO CF | Yes |
| R1 | Pr2 | Pr2\_R1 | ROBO1 KO CM | NO | No |
| R1\_DX | Pr2 | Pr2\_R1\_DX | ROBO1 KO CM | NO | Yes |
| R1\_ISO | Pr2 | Pr2\_R1\_ISO | ROBO1 KO CM | ISO CF | No |
| R1\_ISO\_DX | Pr2 | Pr2\_R1\_ISO\_DX | ROBO1 KO CM | ISO CF | Yes |
| R1\_R1 | Pr2 | Pr2\_R1\_R1 | ROBO1 KO CM | ROBO1 KO CF | No |
| R1\_R1\_DX | Pr2 | Pr2\_R1\_R1\_DX | ROBO1 KO CM | ROBO1 KO CF | Yes |
| R1\_R2 | Pr2 | Pr2\_R1\_R2 | ROBO1 KO CM | ROBO2 KO CF | No |
| R1\_R2\_DX | Pr2 | Pr2\_R1\_R2\_DX | ROBO1 KO CM | ROBO2 KO CF | Yes |
| R1\_S2 | Pr2 | Pr2\_R1\_S2 | ROBO1 KO CM | SLIT2 KO CF | No |
| R1\_S2\_DX | Pr2 | Pr2\_R1\_S2\_DX | ROBO1 KO CM | SLIT2 KO CF | Yes |
| R2 | Pr2 | Pr2\_R2 | ROBO2 KO CM | NO | No |
| R2\_DX | Pr2 | Pr2\_R2\_DX | ROBO2 KO CM | NO | Yes |
| R2\_ISO | Pr2 | Pr2\_R2\_ISO | ROBO2 KO CM | ISO CF | No |
| R2\_ISO\_DX | Pr2 | Pr2\_R2\_ISO\_DX | ROBO2 KO CM | ISO CF | Yes |
| R2\_R1 | Pr2 | Pr2\_R2\_R1 | ROBO2 KO CM | ROBO1 KO CF | No |
| R2\_R1\_DX | Pr2 | Pr2\_R2\_R1\_DX | ROBO2 KO CM | ROBO1 KO CF | Yes |
| R2\_R2 | Pr2 | Pr2\_R2\_R2 | ROBO2 KO CM | ROBO2 KO CF | No |
| R2\_R2\_DX | Pr2 | Pr2\_R2\_R2\_DX | ROBO2 KO CM | ROBO2 KO CF | Yes |
| R2\_S2 | Pr2 | Pr2\_R2\_S2 | ROBO2 KO CM | SLIT2 KO CF | No |
| R2\_S2\_DX | Pr2 | Pr2\_R2\_S2\_DX | ROBO2 KO CM | SLIT2 KO CF | Yes |
| S2 | Pr2 | Pr2\_S2 | SLIT2 KO CM | NO | No |
| S2\_DX | Pr2 | Pr2\_S2\_DX | SLIT2 KO CM | NO | Yes |
| S2\_ISO | Pr2 | Pr2\_S2\_ISO | SLIT2 KO CM | ISO CF | No |
| S2\_ISO\_DX | Pr2 | Pr2\_S2\_ISO\_DX | SLIT2 KO CM | ISO CF | Yes |
| S2\_R1 | Pr2 | Pr2\_S2\_R1 | SLIT2 KO CM | ROBO1 KO CF | No |
| S2\_R1\_DX | Pr2 | Pr2\_S2\_R1\_DX | SLIT2 KO CM | ROBO1 KO CF | Yes |
| S2\_R2 | Pr2 | Pr2\_S2\_R2 | SLIT2 KO CM | ROBO2 KO CF | No |
| S2\_R2\_DX | Pr2 | Pr2\_S2\_R2\_DX | SLIT2 KO CM | ROBO2 KO CF | Yes |
| S2\_S2 | Pr2 | Pr2\_S2\_S2 | SLIT2 KO CM | SLIT2 KO CF | No |
| S2\_S2\_DX | Pr2 | Pr2\_S2\_S2\_DX | SLIT2 KO CM | SLIT2 KO CF | Yes |
| **Pr2-Cell type RNA sample: CARDIOMYOCYTE (CM)** | | | |  |  |