

Proteomic analysis reveals key proteins in extracellular vesicles cargo associated with idiopathic pulmonary fibrosis in vitro

Juan Manuel Velázquez-Enríquez¹, Jovito Cesar Santos-Álvarez¹, Alma Aurora Ramírez-Hernández¹, Edilburga Reyes-Jiménez¹, Armando López-Martínez¹, Socorro Pina-Canseco², Sergio Roberto Aguilar-Ruiz¹, María de los Ángeles Romero-Tlalolini⁵, Luis Castro-Sánchez³, Jaime Arellanes-Robledo⁴, Verónica Rocío Vásquez-Garzón⁵ and Rafael Baltiérrez -Hoyos^{5*}

¹ Facultad de Medicina y Cirugía, Universidad Autónoma Benito Juárez de Oaxaca, 68120, Oaxaca, México; juanmanuelvela_enriquez@live.com (J.M.V.-E.); jovitocesarsa@hotmail.com (J.C.S.-Á.); aramih_09@hotmail.com (A.A.R.-H.); edilreyesjimnez@yahoo.com.mx (E.R.-J.); armandolopez37@gmail.com (A.L.-M.); sar_cinvestav@hotmail.com (S.R.A.-R.)

² Centro de Investigación, Facultad de Medicina, UNAM-UABJO, 68120, Oaxaca, Oax, México; socopina12@hotmail.com (S.P.-C.)

³ CONACYT-Facultad de Medicina y Cirugía, Universidad Autónoma Benito Juárez de Oaxaca, 68120 Oaxaca, México; mdlaromerotl@conacyt.mx (M.Á.R.-T.); veronicavasgar@gmail.com (V.R.V.-G.)

⁴ CONACYT-Universidad de Colima, Centro Universitario de Investigaciones Biomédicas "CUIB", Universidad de Colima, 28045 Colima, Col, México; luis_castro@uclm.mx (L.C.-S.)

⁵ CONACYT-Instituto Nacional de Medicina Genómica, 14610 Ciudad de México, México; jarellanes@inmegen.gob.mx (J.A.-R.)

* Correspondence: rbaltierrez@hotmail.com (R.B.-H.)

Supplementary Figures

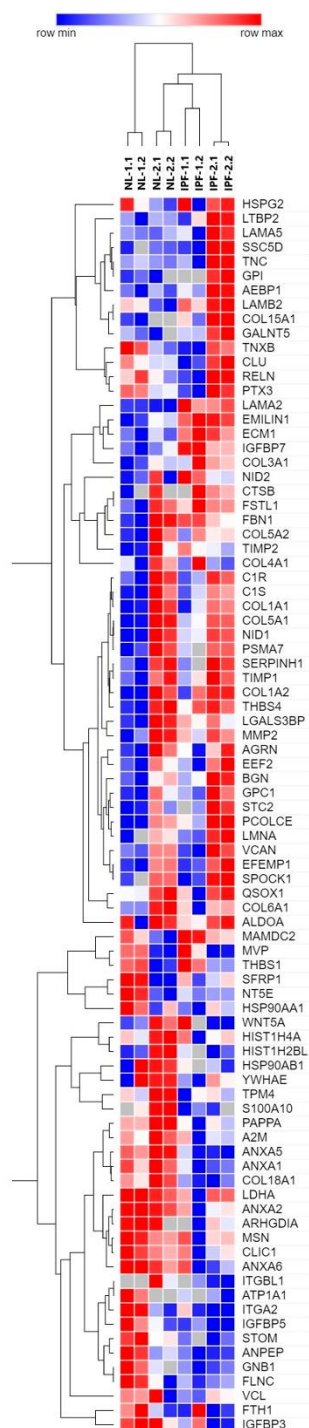


Figure S1: Heat map showing differentially expressed proteins in EVs cargo isolate from cell lines bearing both IPF and healthy phenotype. Protein intensities were log2 transformed and Z-scored to be normalized between groups. Up-regulated and down-regulated proteins are depicted in red and blue colors, respectively. IPF, idiopathic pulmonary fibrosis; NL, normal lung.

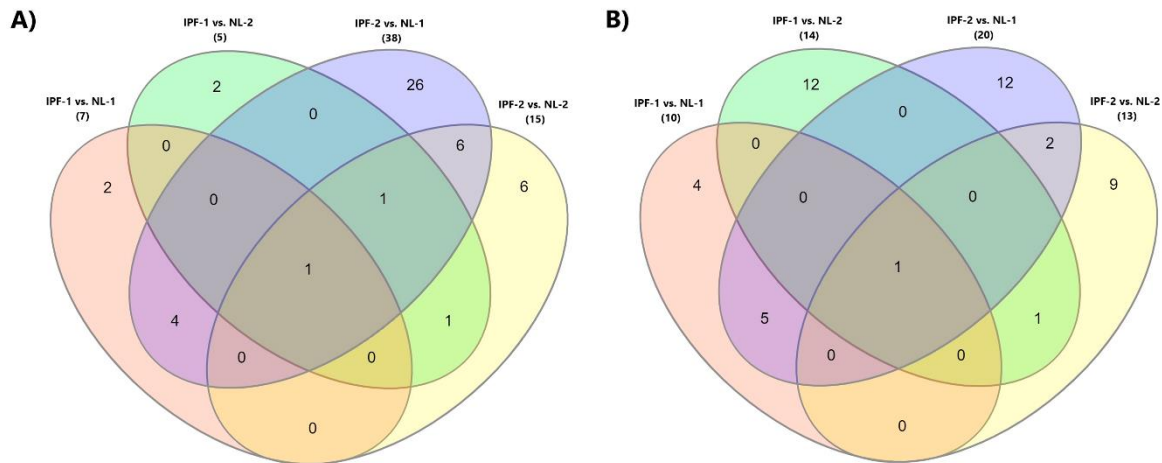


Figure S2: Distribution of differentially expressed proteins. (A) Venn diagram showing the distribution of up-regulated proteins in the comparison groups. (B) Venn diagram showing the distribution of down-regulated proteins in the comparison groups. IPF, idiopathic pulmonary fibrosis; NL, normal lung.

Supplementary Tables

Figure S1: Heat map showing differentially expressed proteins in EVs cargo isolated from cell lines bearing both IPF and healthy phenotype.

Figure S2: Distribution of differentially expressed proteins.

Table S1: Proteins identified by proteomic analysis using LFQ intensity value $\neq 0$ in at least one biological replicate.

Table S2: Proteins identified by proteomic analysis using LFQ intensity value $\neq 0$ and MS/MS (spectral) count ≥ 2 in at least one biological replicate.

Table S3: Proteins identified in a single EVs group.

Table S4: Proteins identified as differentially expressed (fold change ≥ 1 $y \leq -1$ and $p < 0.05$) in IPF-1 vs. NL-1 comparison.

Table S5: Proteins identified as differentially expressed (fold change ≥ 1 $y \leq -1$ and $p < 0.05$) in IPF-1 vs. NL-2 comparison.

Table S6: Proteins identified as differentially expressed (fold change ≥ 1 $y \leq -1$ and $p < 0.05$) in IPF-2 vs. NL-1 comparison.

Table S7: Proteins identified as differentially expressed (fold change ≥ 1 $y \leq -1$ and $p < 0.05$) in IPF-2 vs. NL-2 comparison.

Table S8: Proteins identified as differentially expressed (fold change ≥ 1 $y \leq -1$ and $p < 0.05$) in two or more comparisons.

Table S9: GO enrichment (biological process) for up-regulated proteins in the pairwise comparisons using GeneCodis.

Table S10: GO enrichment (biological process) for down-regulated proteins in the pairwise comparisons GeneCodis.

Table S11: GO enrichment (molecular function) for up-regulated proteins in the pairwise comparisons using GeneCodis.

Table S12: GO enrichment (molecular function) for down-regulated proteins in the pairwise comparisons using GeneCodis.

Table S13: GO enrichment (cellular component) for up-regulated proteins in the pairwise comparisons using GeneCodis.

Table S14: GO enrichment (cellular component) for down-regulated proteins in the pairwise comparisons using GeneCodis

Table S15: Enrichment pathways (KEGG) for up-regulated proteins in the pairwise comparisons using GeneCodis.

Table S16: Enrichment pathways (KEGG) for down-regulated proteins in the pairwise comparisons using GeneCodis.