



# Bifunctional Immunotherapeutic HCW9218 for Cancer and Inflammaging

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3<sup>RD</sup> INTERNATIONAL CONFERENCE ON

CELL AND EXPERIMENTAL BIOLOGY, BOSTON, MA

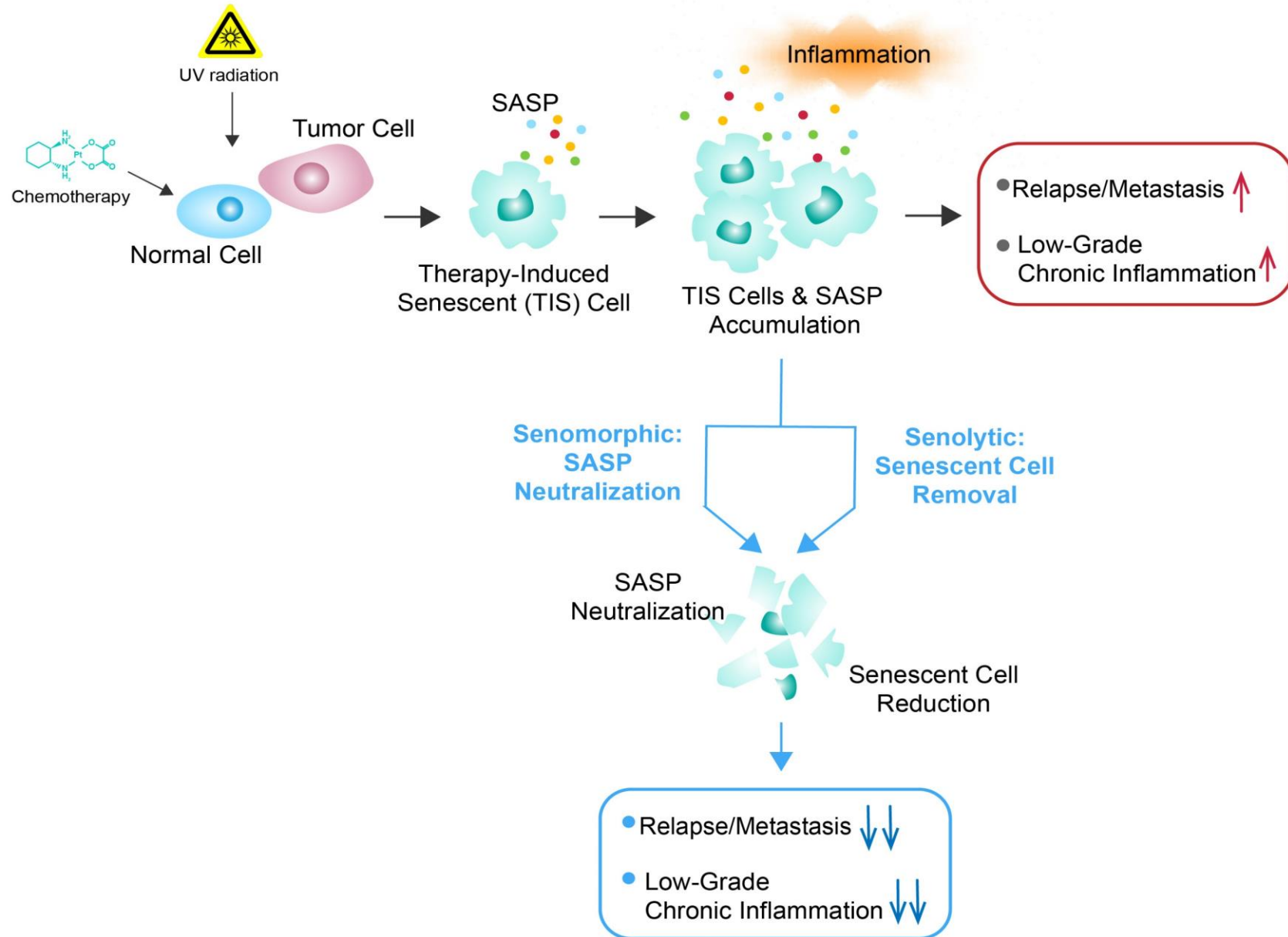
APRIL 19, 2022

# Forward Looking Statements

Certain information contained in this presentation and statements made orally during this presentation include forward-looking statements that involve substantial risks and uncertainties. All statements included in this presentation, other than statements of historical facts, are forward-looking statements. Forward-looking statements include, without limitation, statements about the product candidates of HCW Biologics Inc. (the “Company”) and the utility of the TOBI platform in identifying and discovering product candidates, the potential advantages of the Company’s current and future product candidates, the Company’s anti-inflammaging clinical development strategy and the Company’s intellectual property strategy.

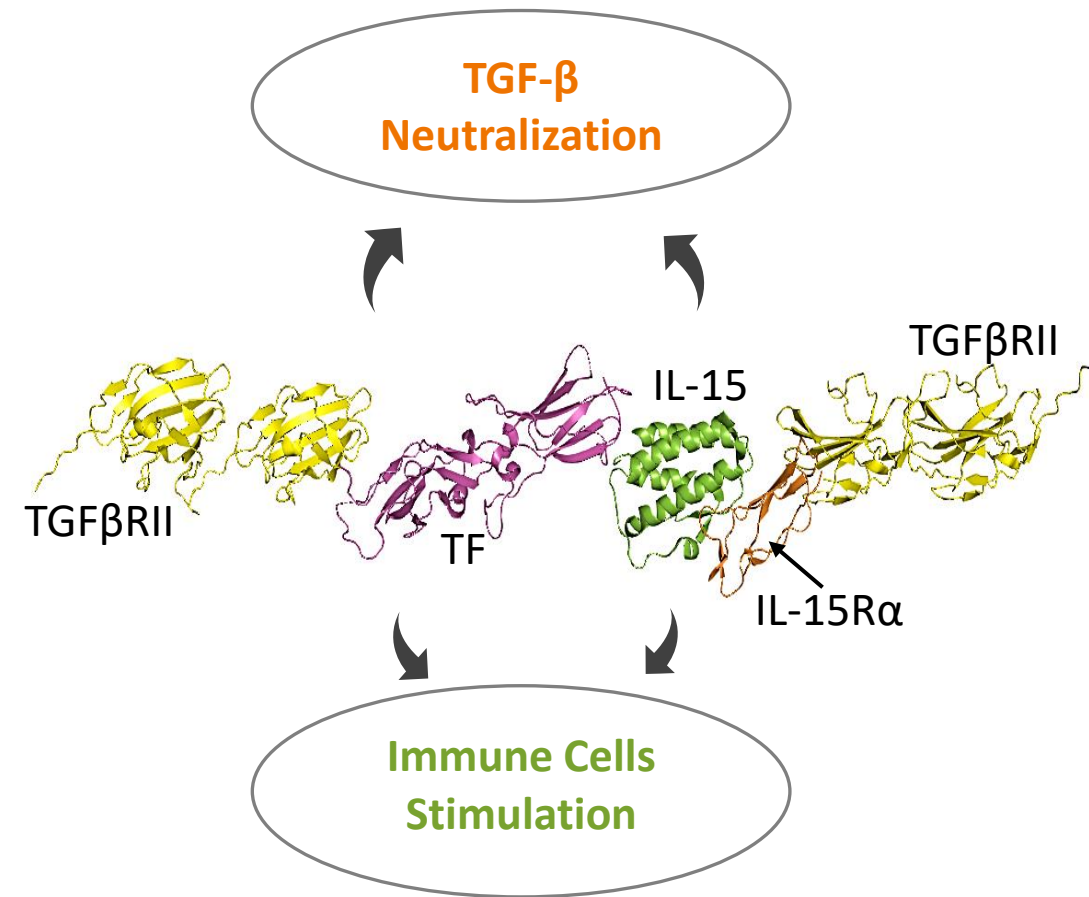
Actual results or events could differ materially from the plans, intentions, expectations and projections disclosed in the forward-looking statements. Various important factors could cause actual results or events to differ materially, including, but not limited to, the risk that trials and studies may be delayed or terminated as a result of COVID-19 and other factors, that the Company or its collaborators may be unable to successfully develop and commercialize its product candidates, that the Company may not be able to identify licensees to develop the Company’s internally-developed modules into lead product candidates, that the Company’s novel immunotherapy platform may not result in approvable or marketable products, that the Company is unable to complete the clinical development of or successfully commercialize HCW9218, that trials may not have satisfactory outcomes, that preclinical studies of product candidates may not be predictive of the results of future preclinical studies or trials, that the Company’s third party manufacturers may encounter difficulties in production of product candidates for clinical trials, that the Company will need to raise additional capital, which may not be available on favorable terms, if at all, the risk that costs required to develop or manufacture the Company’s products will be higher than anticipated, including as a result of delays in development and manufacturing resulting from COVID-19 and other factors, the risk that the Company is unable to file INDs to commence additional trials, competition and other risks described in the sections titled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the Company’s Annual Report on Form 10-K (No. 333-256510) filed for the year ended December 31, 2021 with the Securities and Exchange Commission (the “SEC”) on March 29, 2022 and in other filings with the SEC. The forward-looking statements in this presentation represent the Company’s view as of the date of this presentation and the Company does not assume any obligation to update any forward-looking statements, except as required by law.

# Therapy-Induced Cellular Senescence



# HCW9218 as Potential Treatment for Cancer and Therapy-Induced Senescence (TIS)

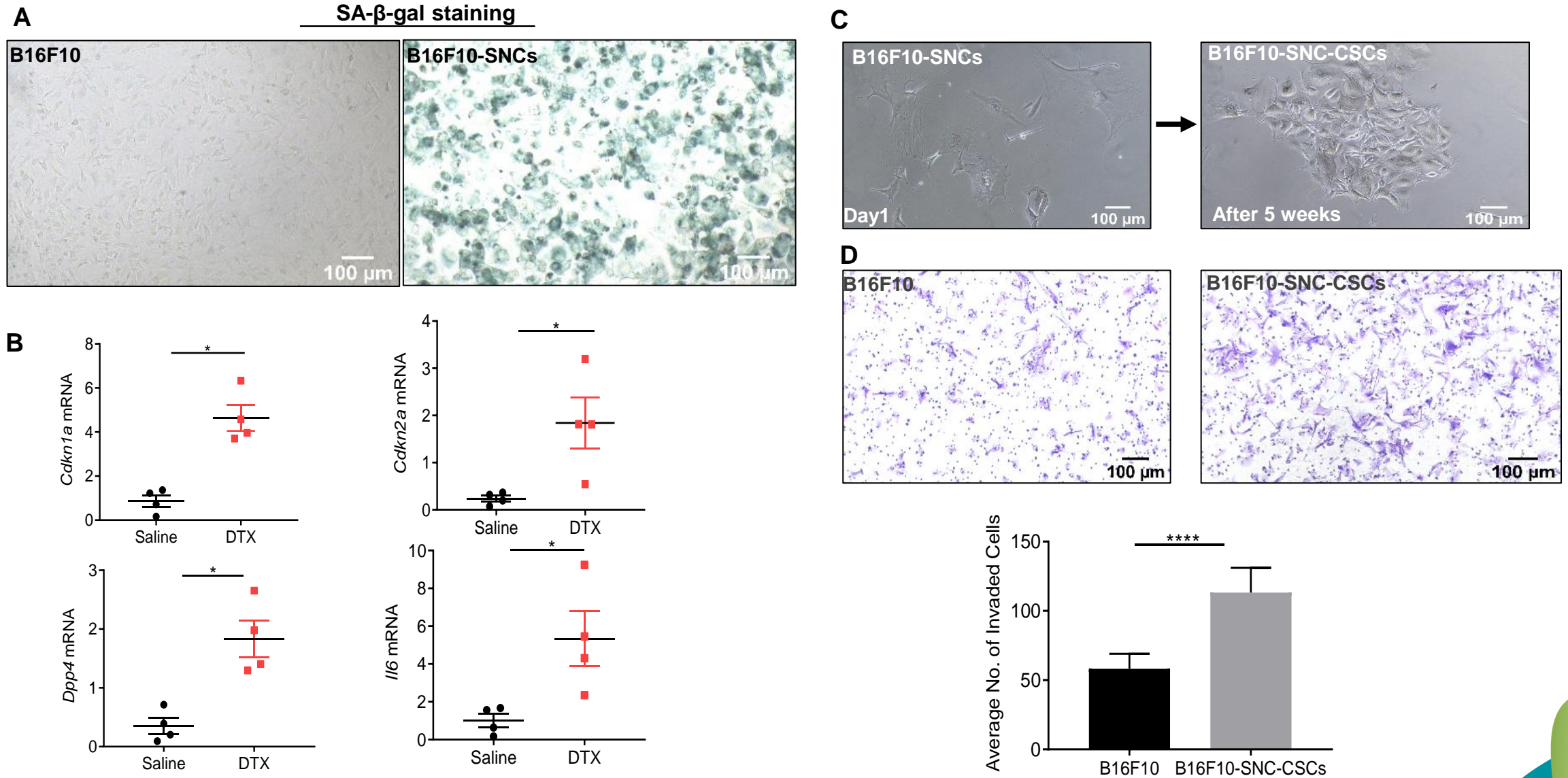
**HCW9218** augments chemotherapy and checkpoint inhibitors against cancer and limits off-target side effects in animal models.



<sup>1</sup>Liu B, et al. Bifunctional TGF-β trap/IL-15 Protein Complex Elicits Potent NK Cell and CD8+ T Cell Immunity against Solid Tumors. Mol Ther. 2021 Oct 6;29(10):2949-2962.

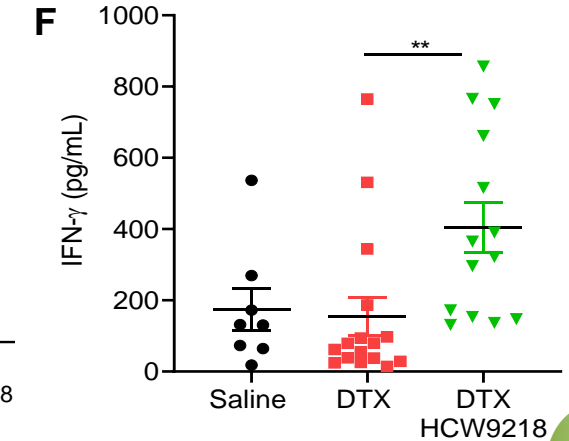
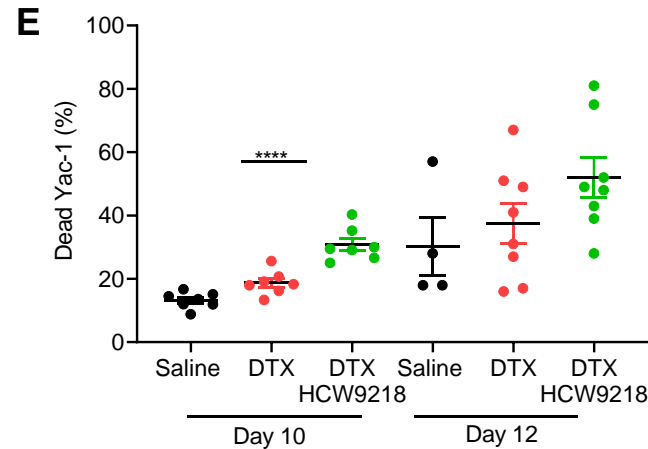
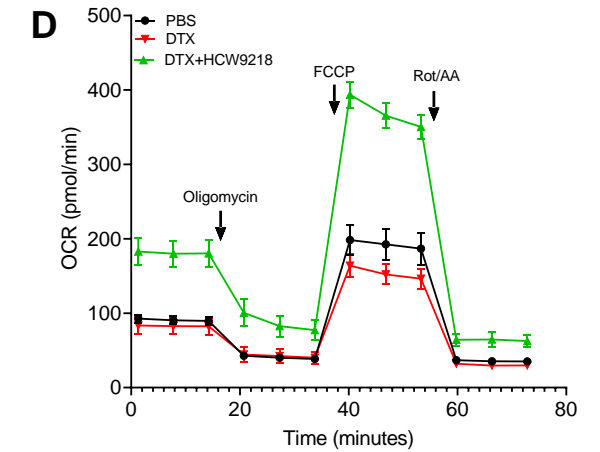
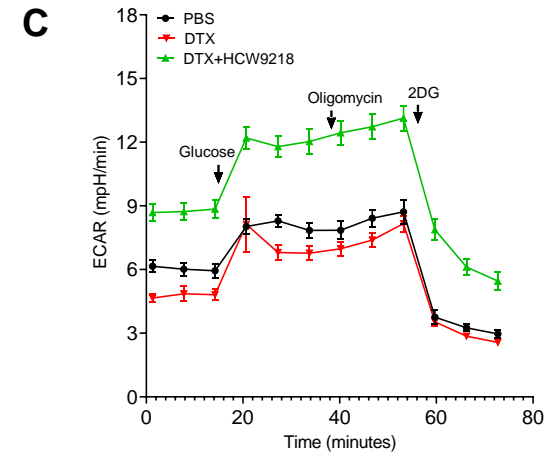
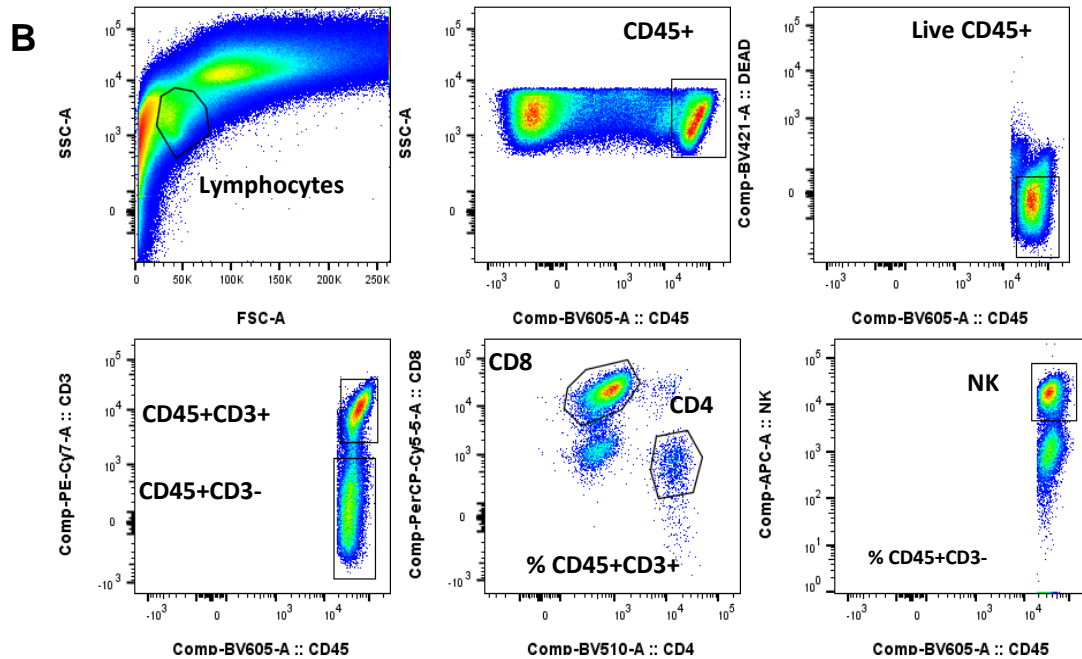
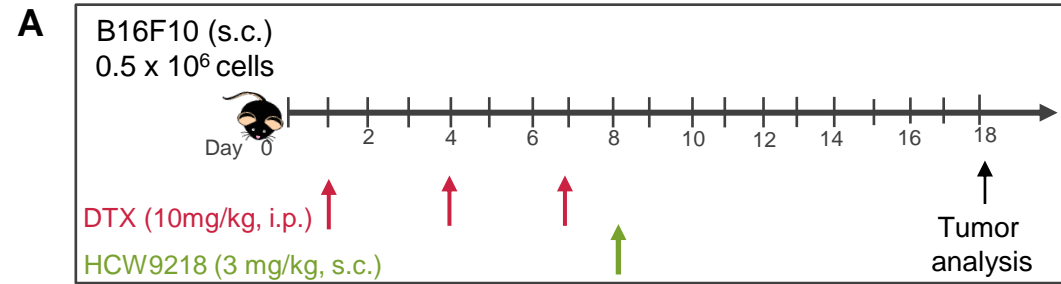
<sup>2</sup>Chaturvedi, P et al., Immunotherapeutic HCW9218 Augments Anti-tumor Activity of Chemotherapy via NK Cell Mediated Reduction of Therapy Induced Senescent Cells. Mol Ther. January 17, 2022.

# Chemotherapy-Induced Senescent Cancer Cells



Chaturvedi, P et al., Immunotherapeutic HCW9218 Augments Anti-tumor Activity of Chemotherapy via NK Cell Mediated Reduction of Therapy Induced Senescent Cells. Mol Ther. January 17, 2022.

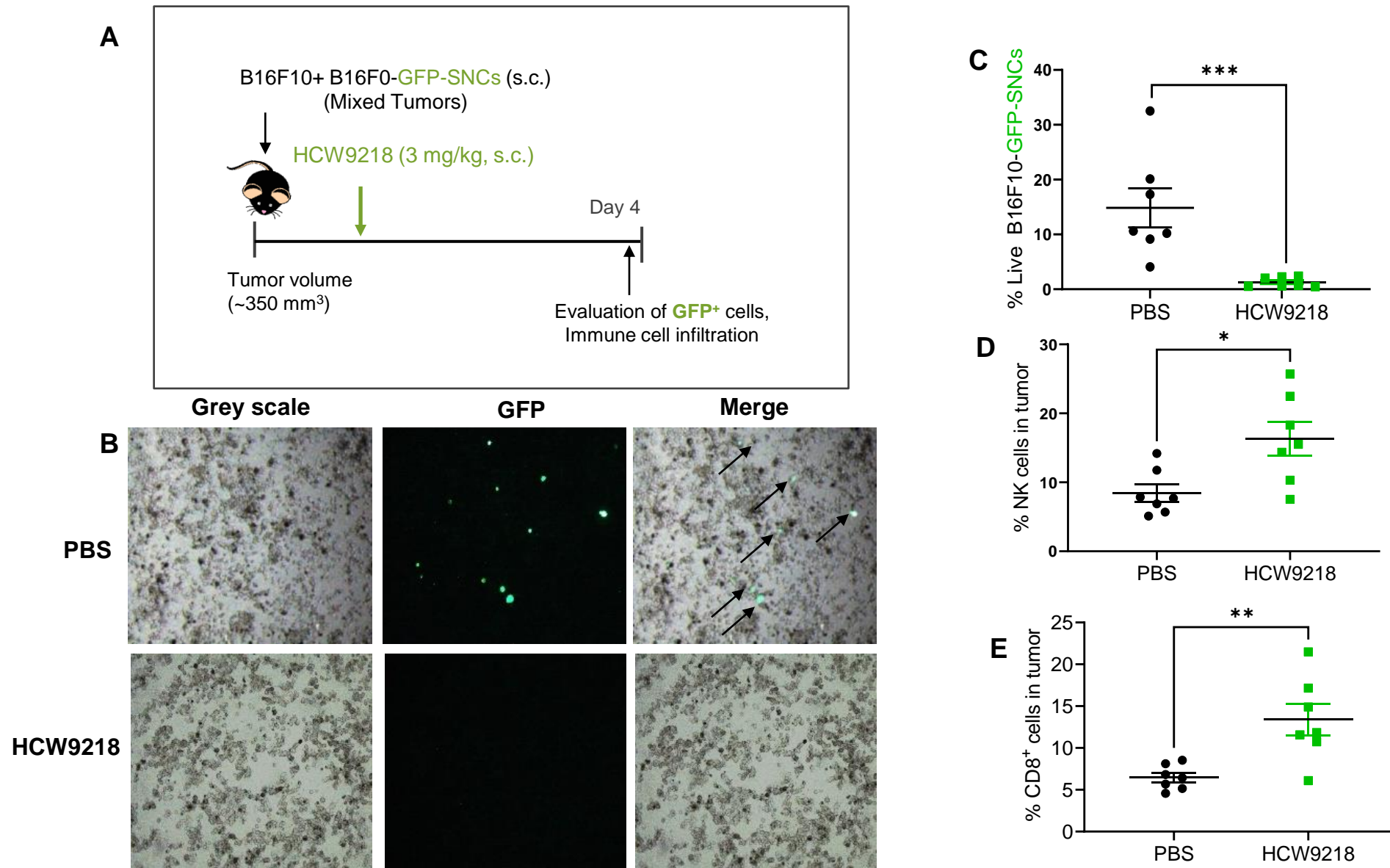
# Immune-Stimulatory Activities of HCW9218 after Chemotherapy



Chaturvedi, P et al., Immunotherapeutic HCW9218 Augments Anti-tumor Activity of Chemotherapy via NK Cell Mediated Reduction of Therapy Induced Senescent Cells. Mol Ther. January 17, 2022.

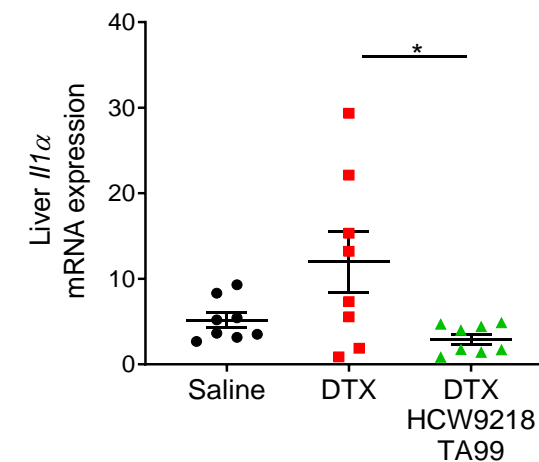
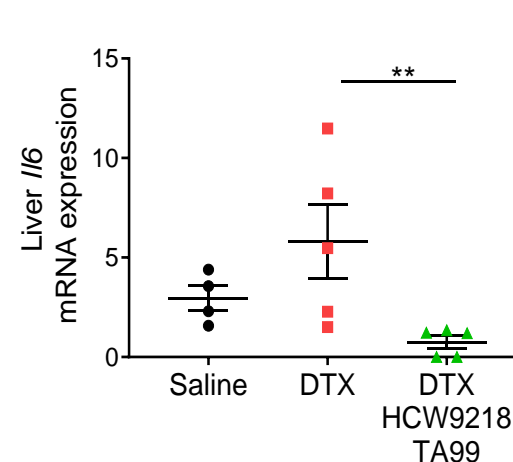
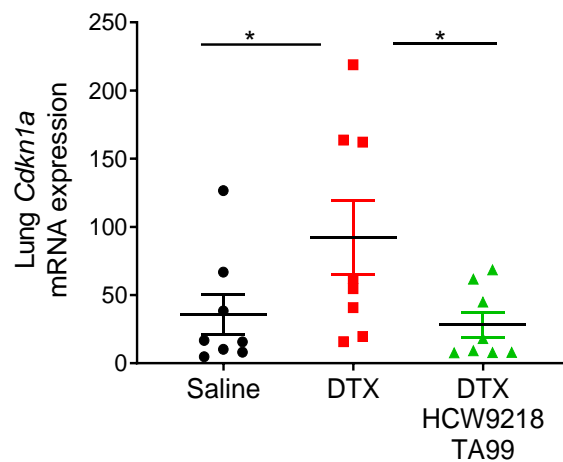
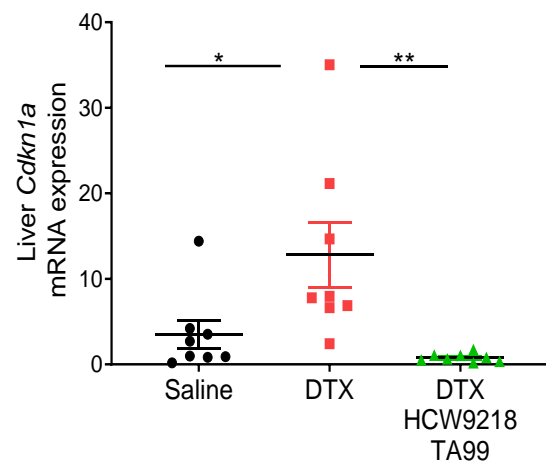


# Clearance of TIS Cancer Cells by HCW9218



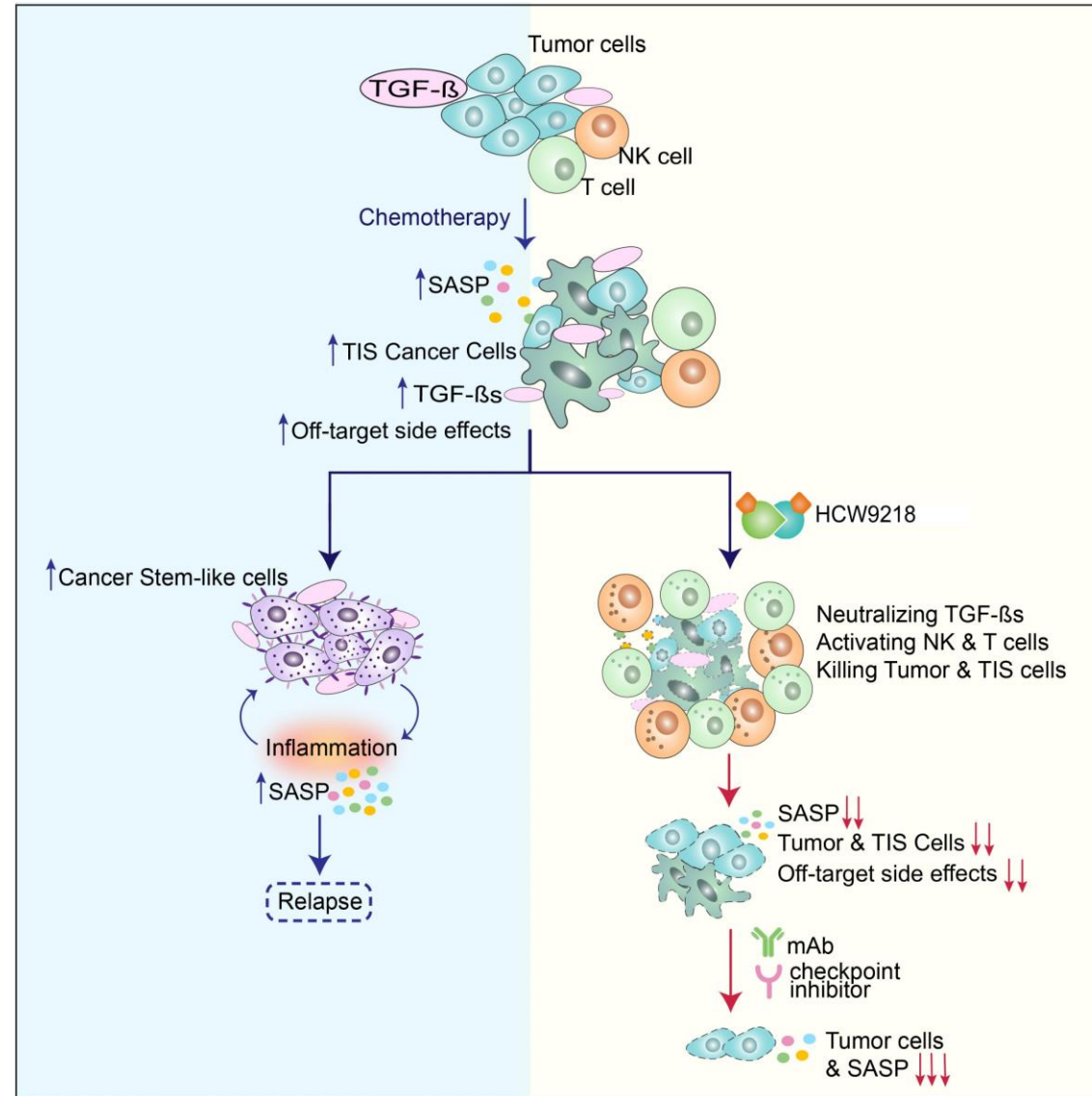
Chaturvedi, P et al., Immunotherapeutic HCW9218 Augments Anti-tumor Activity of Chemotherapy via NK Cell Mediated Reduction of Therapy Induced Senescent Cells. Mol Ther. January 17, 2022.

# Clearance of Therapy-Induced Normal Tissue Cells by HCW9218



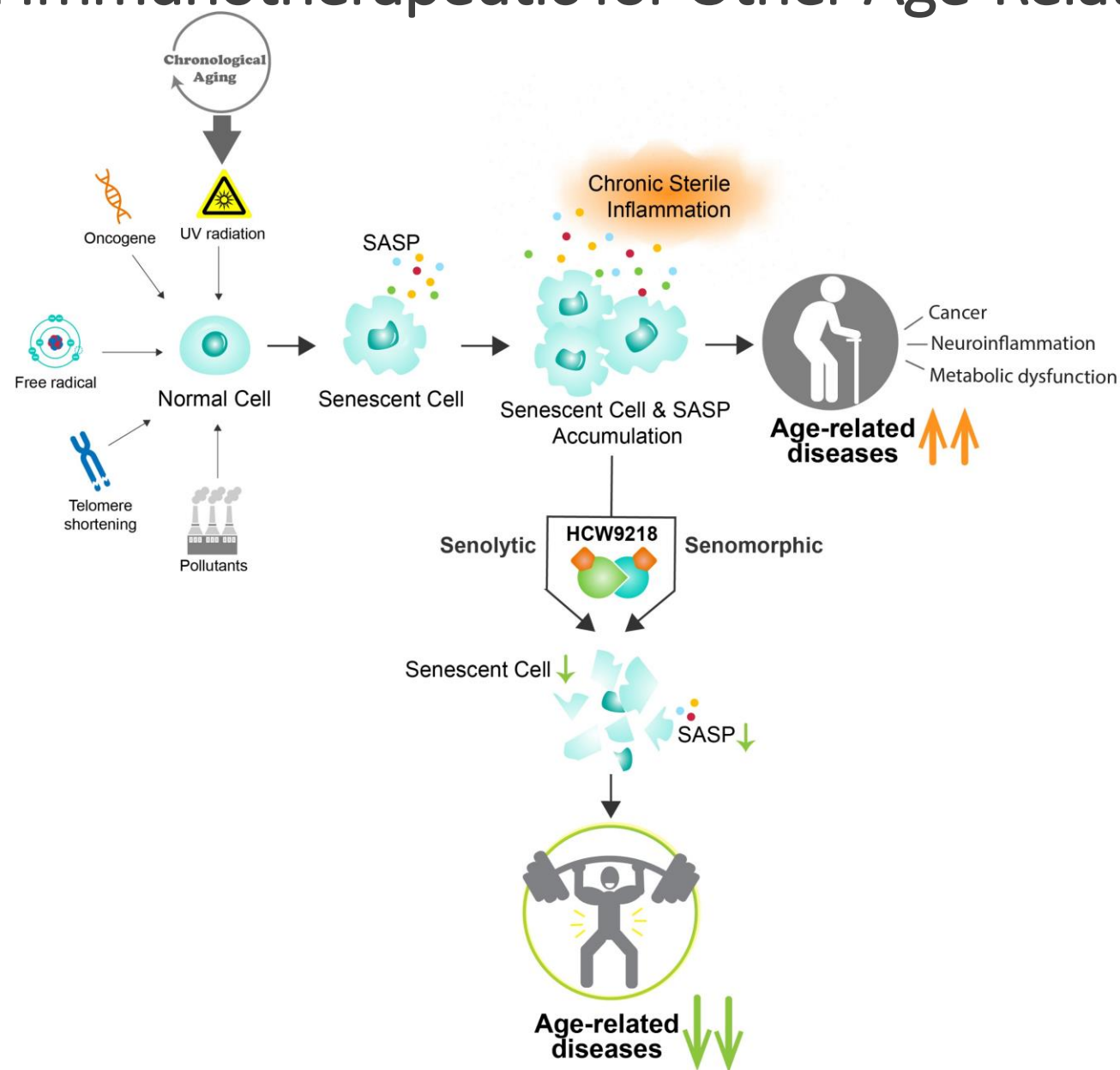


# Mechanism of Action of HCW9218 for Anti-Cancer Therapy

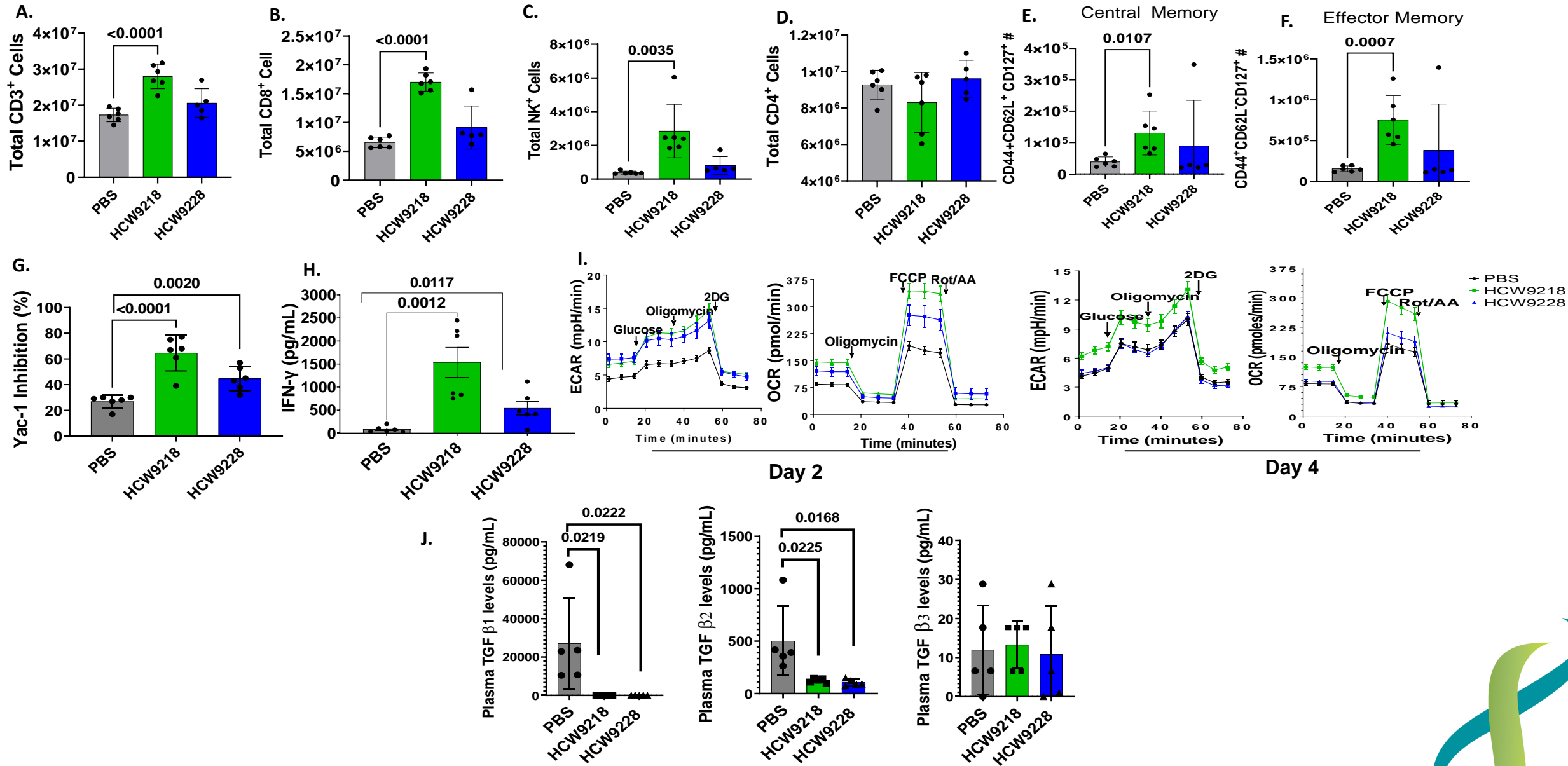


Chaturvedi, P et al., Immunotherapeutic HCW9218 Augments Anti-tumor Activity of Chemotherapy via NK Cell Mediated Reduction of Therapy Induced Senescent Cells. Mol Ther. January 17, 2022.

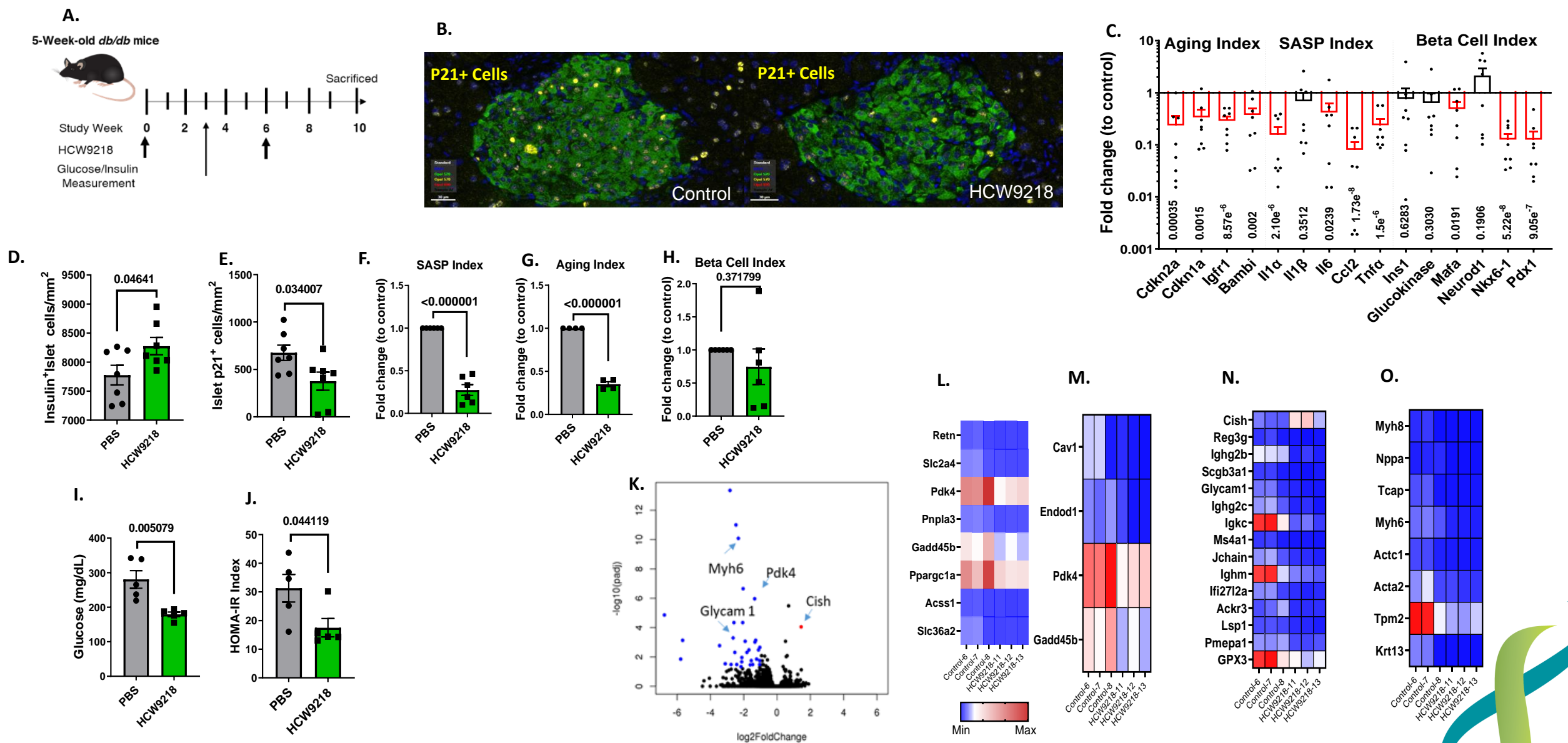
# HCW9218: Novel Immunotherapeutic for Other Age-Related Diseases



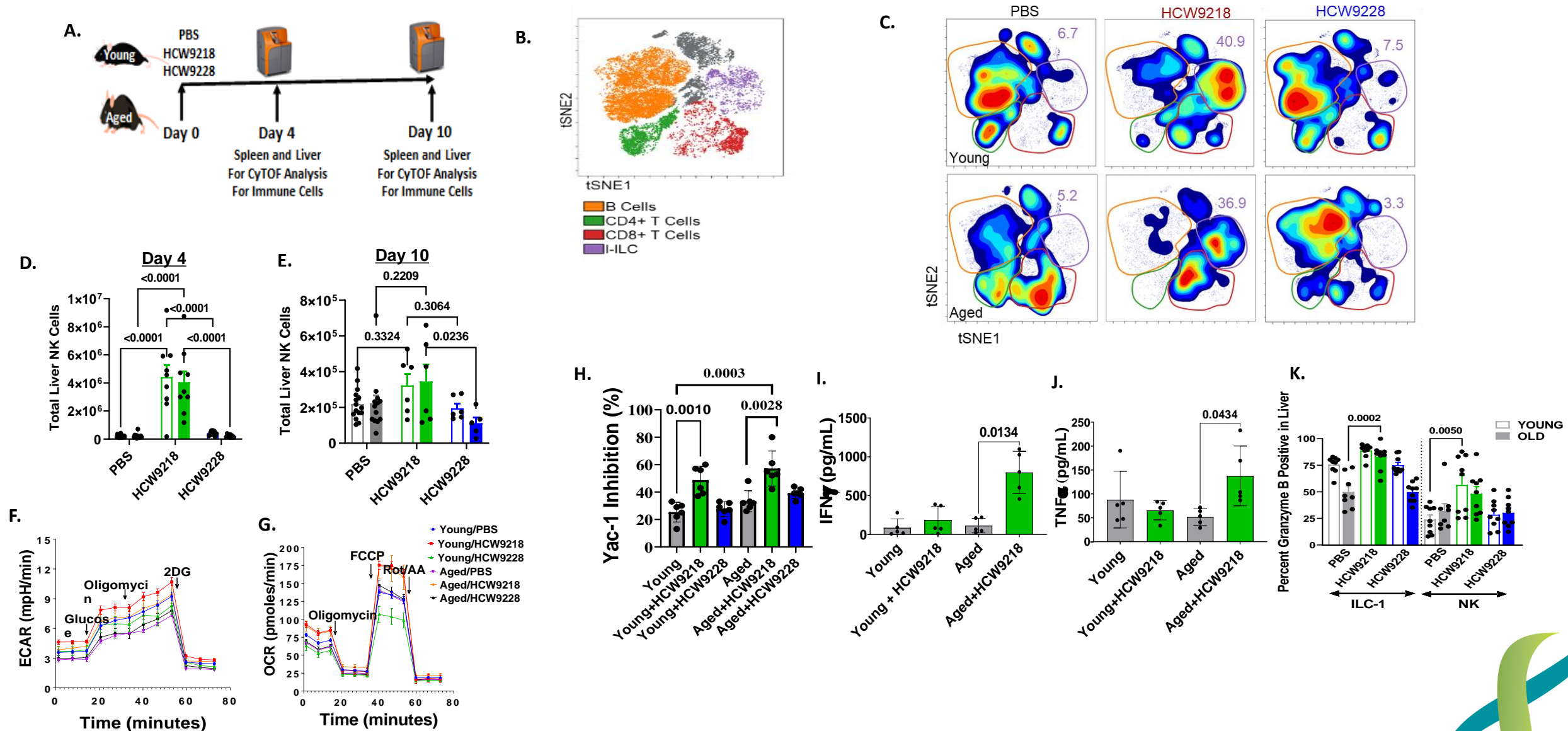
# HCW9218 enhances immune-mediated biological activities in diabetic db/db mouse



# HCW9218 treatment reduces senescent pancreatic $\beta$ islet cells and SASP factors to improve T2D db/db mice

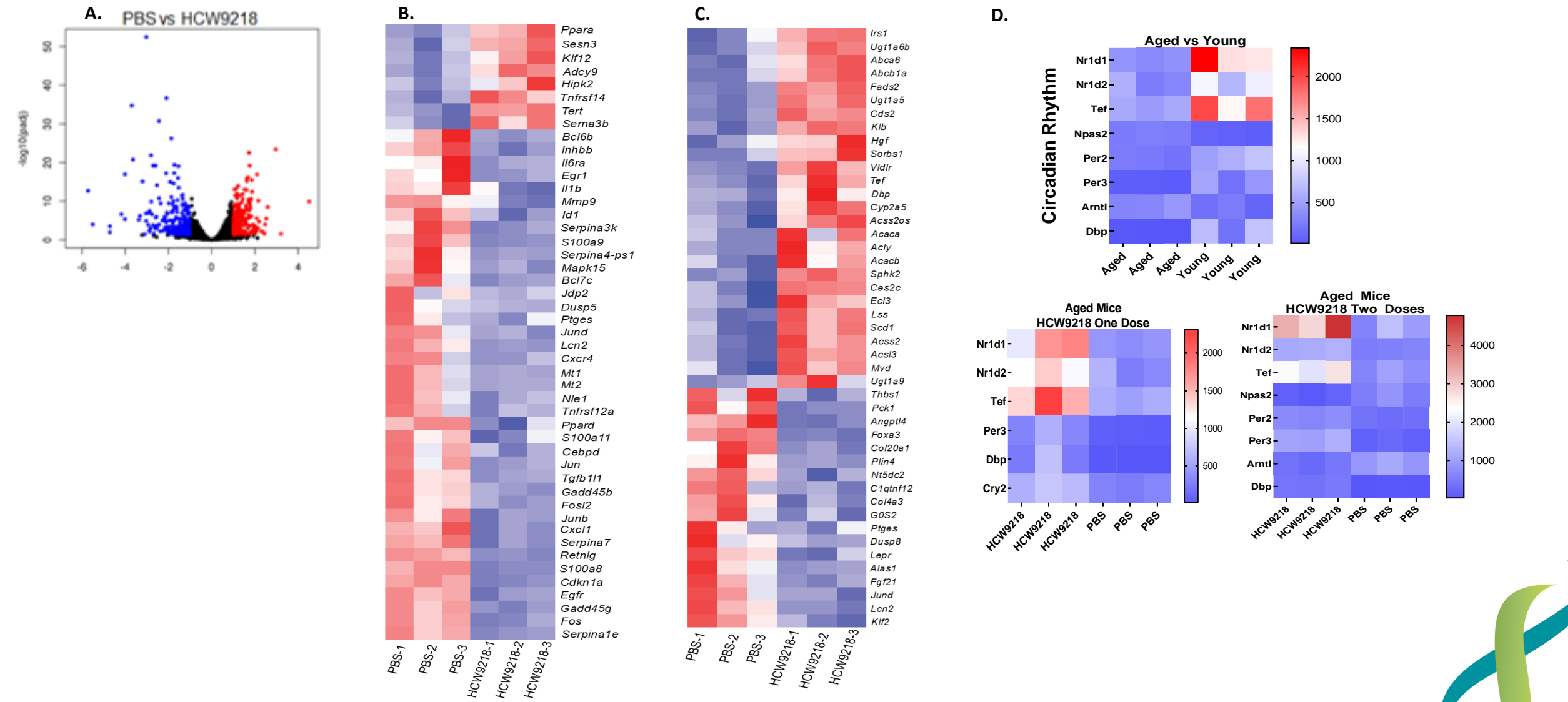


# HCW9218 stimulates immune cell activity and metabolic functions in liver of chronologically aged mice



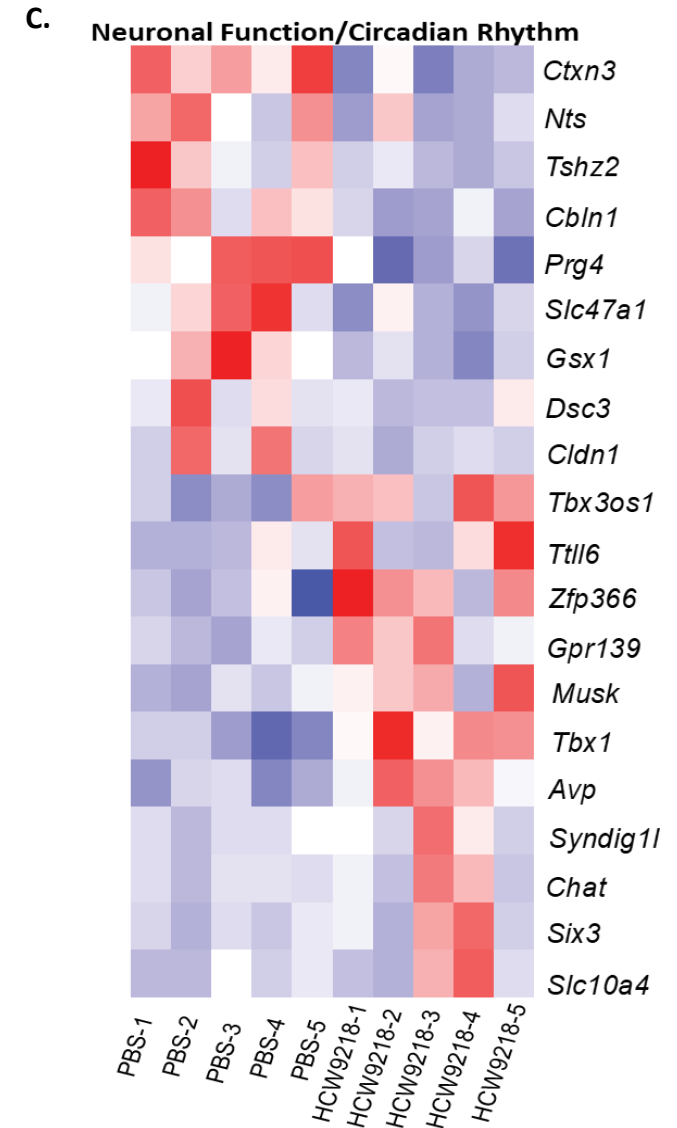
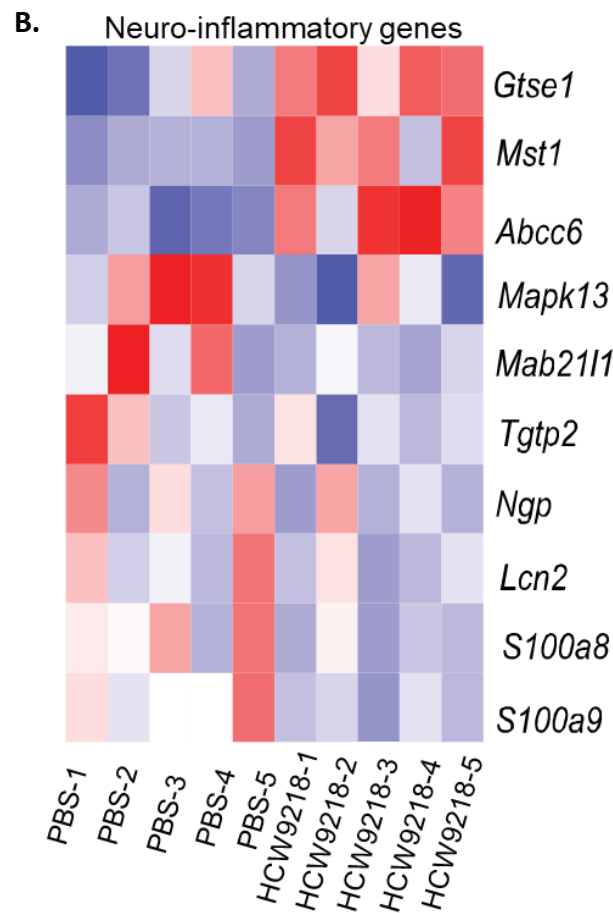
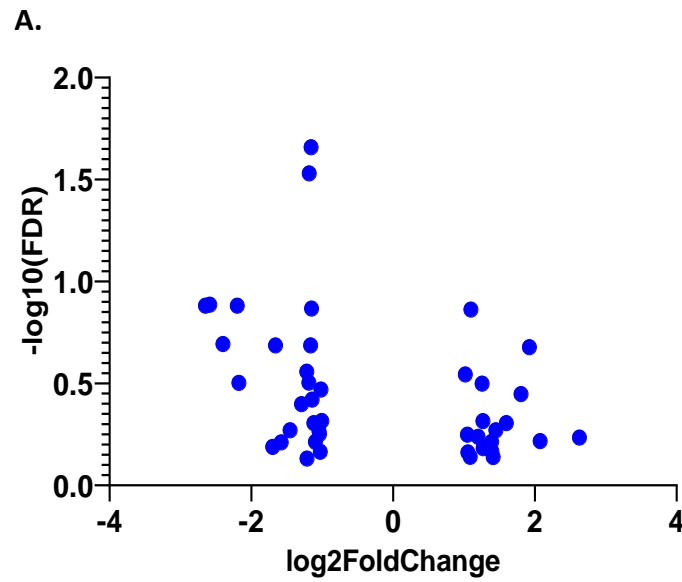


# HCW9218 reduces inflammation (SASP) and cellular senescence associated genes of chronologically aged mice in liver

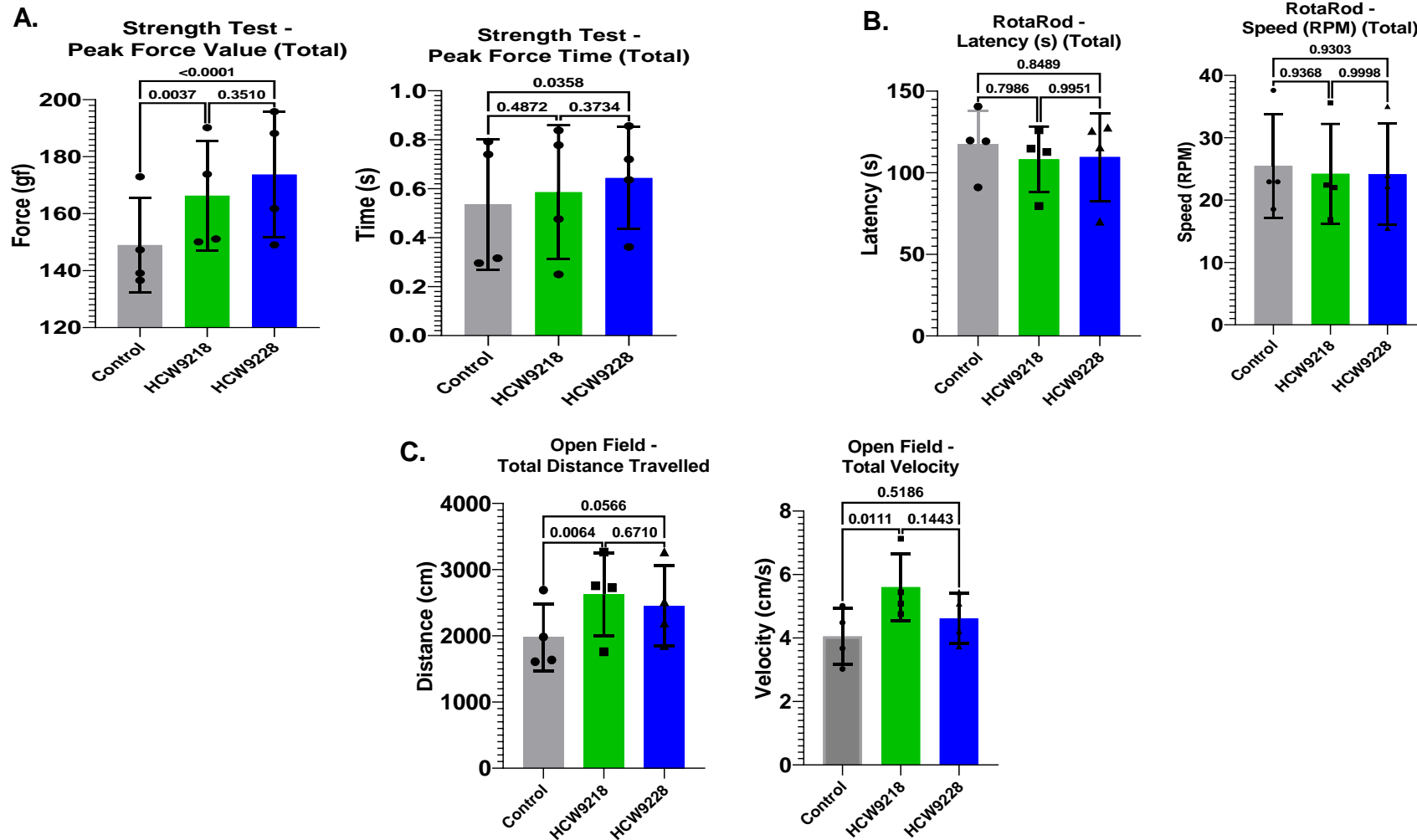




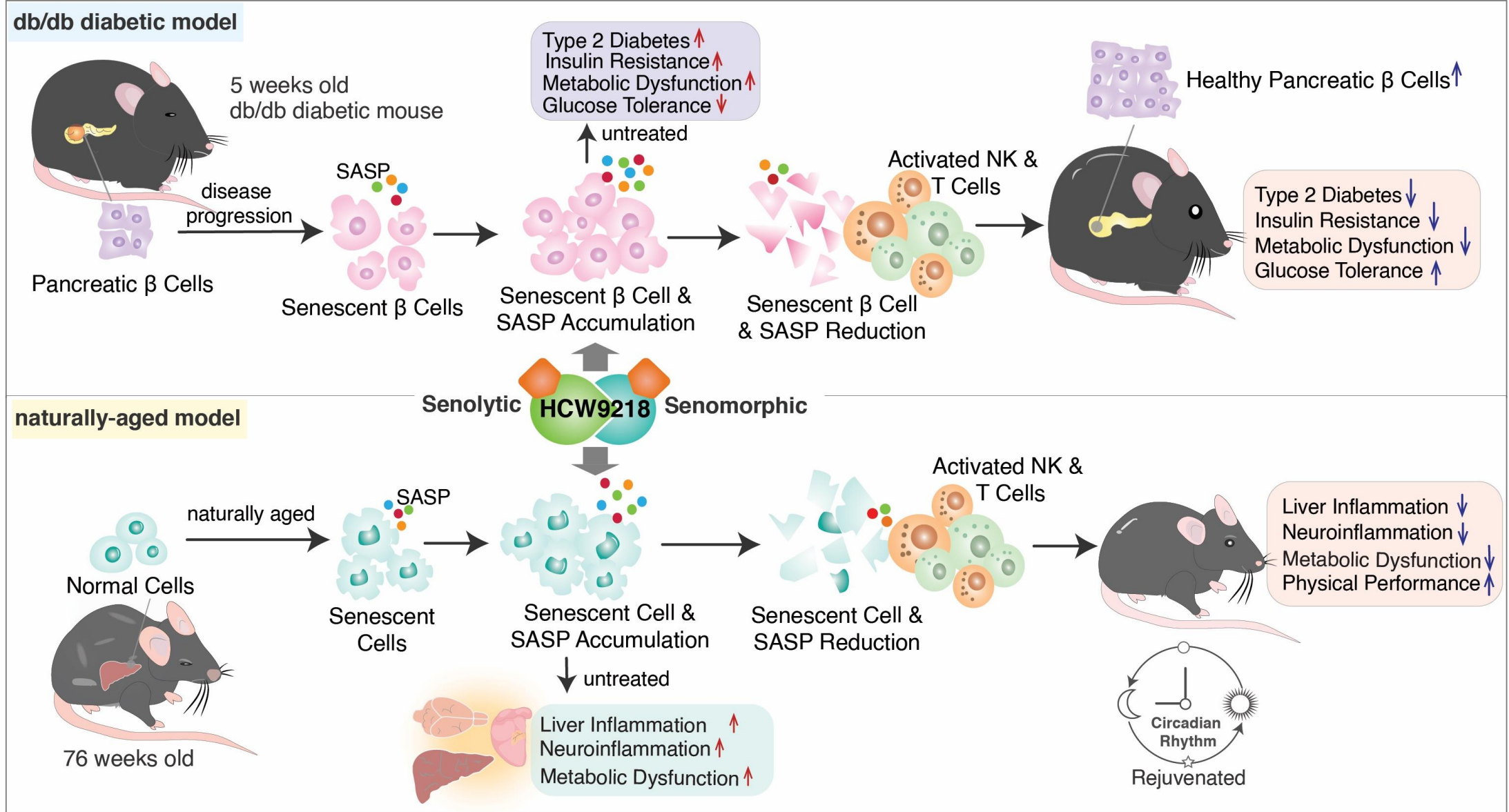
# HCW9218 reduces neuroinflammation and affects neuronal functions of the naturally aged mice



Significant maintenance of physical performance over time by both HCW9218 and HCW9228 treated aged mice and HCW9218 is well tolerated by mice and non-human primate and no long-term adverse effects on naturally aged mice



# HCW9218: Novel Senolytic and Senomorphic Immunotherapeutic in Mice





THANK YOU!!