Subject: Dissertation Defense - Ahmad J. Alvi, PhD Biosciences
Date: Tuesday, July 7, 2026 at 11:00:18 AM Eastern Daylight Time
From: SSB Faculty List on behalf of Diane St. Germain
To: SSB-FACULTY-LIST-L@LISTSERV.GMU.EDU

Dissertation Defense Announcement
To: The George Mason University Community

Candidate: Ahmad J. Alvi

Program: PhD in Biosciences

Date: July 21, 2026

Time: 10:00 AM Eastern Time (US and Canada)

Location:
In person-- IABR Conference Room 1004, Science & Tech Campus Manassas, Va.
and via Zoom
Join Zoom Meeting
https://gmu.zoom.us/j/93508450332?pwd=zaZNvkeXDp1VKJrtwjaHlnvrCYSADA.1

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Committee chair: Dr. Yuntao Wu

Committee members: Dr. Ramin Hakami, Dr. Donald Seto, Dr. Vikas Chandhoke

Title: Innovative Gene Transfer Approaches for the New Therapeutic Model Against HIV

Abstract: CD162, or P-selectin glycoprotein ligand-1 (PSGL-1), is a mucin-like adhesion molecule essential for leukocyte trafficking during inflammatory responses. Although its physiological roles are well characterized, its therapeutic potential remains largely unexamined. In this study, we engineered a gene-transfer platform using a pNL-AAV backbone to deliver PSGL-1. The PSGL-1 coding sequence was cloned into the vector to generate the AAV-PSGL-1-RRE plasmid construct, which was packaged into viral particles and evaluated in A3R5.7 cells. Cells were transduced with AAV-PSGL-1 for 12-18 hours before HIV-1 challenge. Experimental conditions included negative controls (cells only), positive controls (HIV-1 alone), cells infected with AAAV-PSGL-RRE virus assembled particles, and treatment groups receiving 2 μL, 5 μL, or 10 μL of the therapeutic vector. Flow cytometric analysis on days 2, 3, 5, and 6 post-infection revealed a pronounced reduction in HIV-1 infection in cells treated with AAV-PSGL-1. These findings highlight the potential of PSGL-1 gene delivery as a novel antiviral strategy and support further investigation into its therapeutic applications.

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