In necropsy was higher in saline group (p=0.003). Proliferation index assessed by Ki67 positivity was significantly lower in lipo group (p=0.01). No metastatic lesion was identified in lung, liver or spleen of any animal.

**CONCLUSION:** Reconstructive fat grafting performed in the setting of residual breast tumor in a clinically relevant animal model does not increase tumor size, mass, proliferation or metastatic spread. This supports the oncologic safety of fat grafting for breast reconstruction after cancer therapy.

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**Chromatin Structure Regulation in Human Adipose-Derived Stem Cell Aging**

**Presenter:** Ivona Percec, MD, PhD  
**Co-Authors:** Xiaoyin Shan, PhD; Cleresa Roberts, BS; Yemin Lan, PhD  
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**INTRODUCTION:** Aging and age-related diseases have been linked to both genetic and epigenetic changes. The chromatin structure is critical to the transmission of epigenetic information impacting transcription and genomic stability. Adult stem cells play a pivotal role in the maintenance of tissue and organ homeostasis during aging and are frequently exploited in regenerative medicine and plastic surgery. Although many studies have been focused on mechanisms of regulating chromatin structure in somatic cells, the mechanism in aging adult human stem cells is not well understood. We hypothesize that understanding the chromatin structure regulation of these stem cells will provide novel therapeutic strategies for both aesthetic and reconstructive applications. Towards this end, in this study we examine global chromatin structures of adipose-derived stem cells (ASCs) from young and old patients and compare them to those of age-matched somatic fibroblasts.

**METHODS:** Human primary ASCs and fibroblasts were isolated from 13 and 8 donors, respectively. The chromatin structure of these cells was examined with the assay for transposase-accessible chromatin using sequencing (ATAC-seq). The data was analyzed to identify genome accessible by Tn5 transposase. Principle component analysis (PCA) was used to assays chromatin structure similarities of all the samples. The Database for Annotation, Visualization and Integrated Discovery (DAVID) was used for pathway enrichment analysis of the accessible promoter regions in the genome of young and old ASCs.

**RESULTS:** Our data demonstrated that 1.2% of the genome in old ASCs, 1.1% in young ASCs, 0.33% in old fibroblasts and 0.51% in young fibroblasts were accessible by Tn5. PCA results demonstrated distinctively different chromatin accessibilities between ASCs and fibroblasts and specific differences between these cells with respect to aging. DAVID pathway enrichment analysis identified several pathways, including DNA damage and repair, nonsense-mediated mRNA decay, and Wnt signaling pathway, to be more accessible in ASCs from old donors.

**CONCLUSION:** In conclusion, our data demonstrated that genome accessibility in ASCs is overall significantly higher than in fibroblasts, consistent with their stemness phenotype. At the global level, ASCs maintain a more stable chromatin structure with advancing age compared with fibroblasts that appear more susceptible to age-related defects, consistent with our prior studies. These data support the benefits ASCs impart to regenerative medicine and will be valuable to the development of novel therapeutics.

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**Does Non-Smoked Nicotine Intake Increase Risk of Post-Operative Complications?**

**Presenter:** Patrick A. Craft, DO  
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**INTRODUCTION:** The detrimental health effects of smoking tobacco are well known. Smoking tobacco increases the risks of many post-operative complications, many of which are germane to plastic surgery. The use of non-tobacco nicotine sources has proliferated in the hope that non-smoking delivery methods are safer than smoking; however, there is little data to support or refute this theory.1-4
METHODS: 5 year prospective study, (1/1/2012-12/2016). We informed patients that they should not smoke for 4 weeks before and 6 weeks after their surgery date. Each patient consented to study and allowed their urine to be tested the day of surgery. The patients were encouraged to stop all nicotine use, but if necessary, non-smoked delivery systems (ie transcutaneous patch, chewing gum) would be tolerated. The urine cotinine level was measured in patients undergoing major flap surgery or having general anesthesia. Patients were followed for 6 weeks to monitor for post-operative complications. Post-operative complications included any unplanned outcome requiring medical attention including but not restricted to infections, wound healing problems, unanticipated return to the operating room, etc. We then divided the patients into four groups: non-nicotine users (in the past year), smokers with negative urine test, smokers with positive urine test and non-smoked nicotine users.

RESULTS: A total of 340 patients were tested. As expected non-nicotine users (n=264), had the lowest rate of complications at 18% (48). Tobacco smokers that tested positive (21) had the highest complication rate at 28.6% (6), while those testing negative (41) had rate of 19.5% (8) similar to non-smokers. Of note, patients using non-smoked nicotine source (14), developed the highest rate of complications 42.9% (6). Analysis of variance test, p-value of 0.26.

CONCLUSION: There is evidence that even when administered through non-smoked methods nicotine does increase the risk of post-operative complications. The increased complication rate in non-smoked nicotine users may be related to higher nicotine blood levels, as it is possible that patches, chewing gum and vaporized usage encourages greater consumption. Given the increasing usage of non-smoked nicotine sources and the perception that the product offers a safe alternative to traditional tobacco use, further studies should be undertaken to better understand clinical implications of usage in aesthetic and plastic surgery. A larger study size could allow for data to reach statistically significant level.

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Does Industry Funding Mean More Publications for Subspecialty Academic Plastic Surgeons?

Presenter: Austin D. Chen, BS

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INTRODUCTION: Conflict of interest among physicians in the context of private industry funding led to the introduction of the Physician Payments Sunshine Act in 2010.1,2 This study examined whether private industry funding correlated with scholarly productivity in the respective subspecialties of plastic surgery as well as the wider academic plastic surgery community.

METHODS: Full-time plastic surgeons and their academic attributes were identified via institutional websites. Fellowship trained individuals were segregated into subspecialties of microsurgery, craniofacial surgery, hand surgery, aesthetics surgery and burns surgery. The Center for Medicare and Medicaid Services (CMS) Open Payment database was used to extract industry funding. Each individual’s bibliometric data were then collected through Scopus to determine the correlation between selected surgeon characteristics, academic productivity, and industry funding.