

# Flow Cytometry Core Facility at Loyola

Phong Le

Patricia Simms

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# Overall goals:

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- To provide modern flow cytometry equipment to study cells at single cell level.
- To provide technical expertise in operating flow cytometry instrumentation.
- To provide basic and advanced training in operating flow cytometry instrumentation.
- To provide basic, advanced training in flow cytometric analyses.

# FACS Core:

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Patricia Simms



Ashley Hess

- Tumor-derived exosomes regulate expression of immune function-related genes in human T-cell subsets Laurent Muller, Masato Mitsuhashi, Patricia Simms, William Gooding, and Theresa Whiteside. 2016 Nature Scientific Reports, in press.
- TCR gene modified T cells can efficiently treat established hepatitis C virus-associated hepatocellular carcinoma. Spear TT, GG Callender, JJ Roszkowski, KM Moxley, PE Simms, KC Foley, DC Murray, GM Scurti, M Li, JT Thomas, A Langerman, E Garrett-Mayer, Y Zhang, MI Nishimura. 2016. *Cancer Immunol Immunother*. In Press.
- FOXO3–NF- $\kappa$ B RelA Protein Complexes Reduce Proinflammatory Cell Signaling and Function. [Matthew G. Thompson](#), [Michelle Larson](#), [Amy Vidrine](#), [Kelly Barrios](#), [Flor Navarro](#), [Kaitlyn Meyers](#), [Patricia Simms](#), [Kushal Prajapati](#), [Lennox Chitsike](#), [Lance M. Hellman](#), [Brian M. Baker](#) and [Stephanie K. Watkins](#). The Journal of Immunology December 15, 2015 vol. 195 no. 12 5637-5647. doi:10.4049.
- Characterization of uptake and internalization of exosomes by bladder cancer cells. [Franzen CA](#), [Simms PE](#), [Van Huis AF](#), [Foreman KE](#), [Kuo PC](#), [Gupta GN](#). Biomed Res Int. 2014;2014:619829. doi: 10.1155/2014/619829. Epub 2014 Jan 19.

# Loyola FACS Core Flow Cytometry Instrumentation

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- Aria III: Sorter and analysis
- Fortessa
- Canto II
- Amnis StreamImage
- AutoMACS
- Fluorescence Polarization plate reader
- Computer stations for analysis

# Aria III

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- Cell Sorter
- Five Lasers
  - Argon (488)
  - Red (633)
  - Violet (405)
  - Yellow-Green (561)
  - Near UV
- Capable of measuring up to 15 colors.
- High speed sorter with attachments for plate sorting, and sorting onto microscope slides.
- Recommended threshold rate: 10,000 events/second.
- This instrument is operated by facility personnel.



# LSR Fortessa

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- Four Lasers
  - Argon (488)
  - Red (633)
  - Violet (405)
  - Yellow-Green (561)
- Capable of measuring up to 15 colors.
- Recommended threshold rate: 10,000 ever



# Canto II

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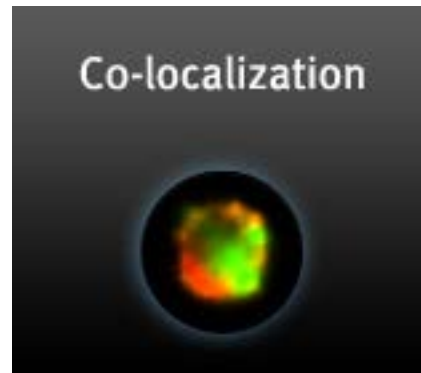
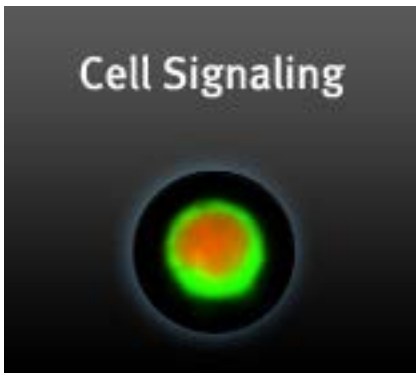
- Three Lasers
  - Argon (488)
  - Red (633)
  - Violet (405)
- Capable of measuring up to 8 colors.
- Recommended threshold rate: 3,000 events/second.



# Amnis ImageStream MKII

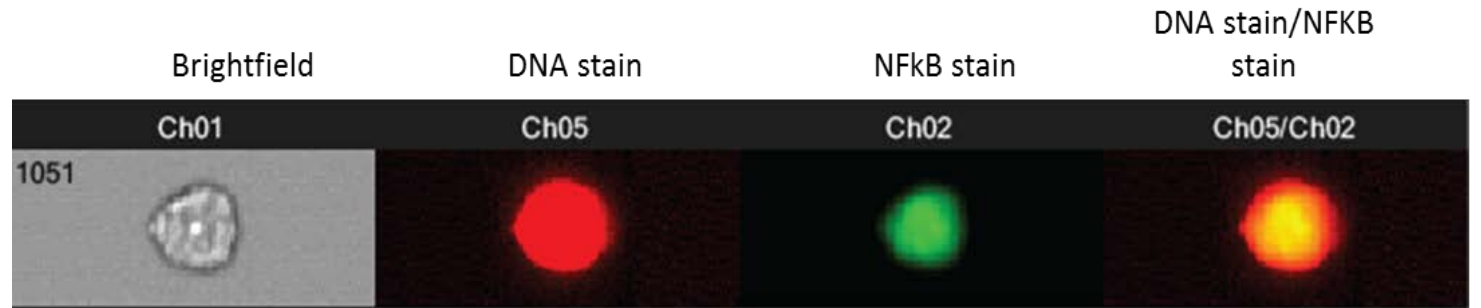
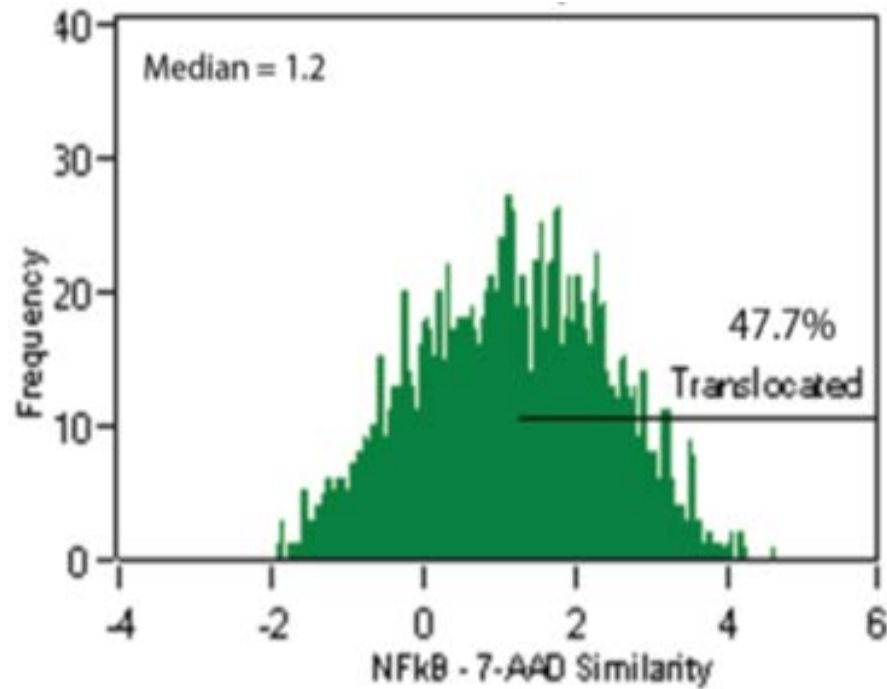
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- Confocal microscopy and flow cytometry.
- Capable of measuring 6 colors (6 channels).
- IDEAS Wizards: Apoptosis, Cell Cycle-Mitosis, Nuclear Localization.
- Masks: Texture, Spot Count



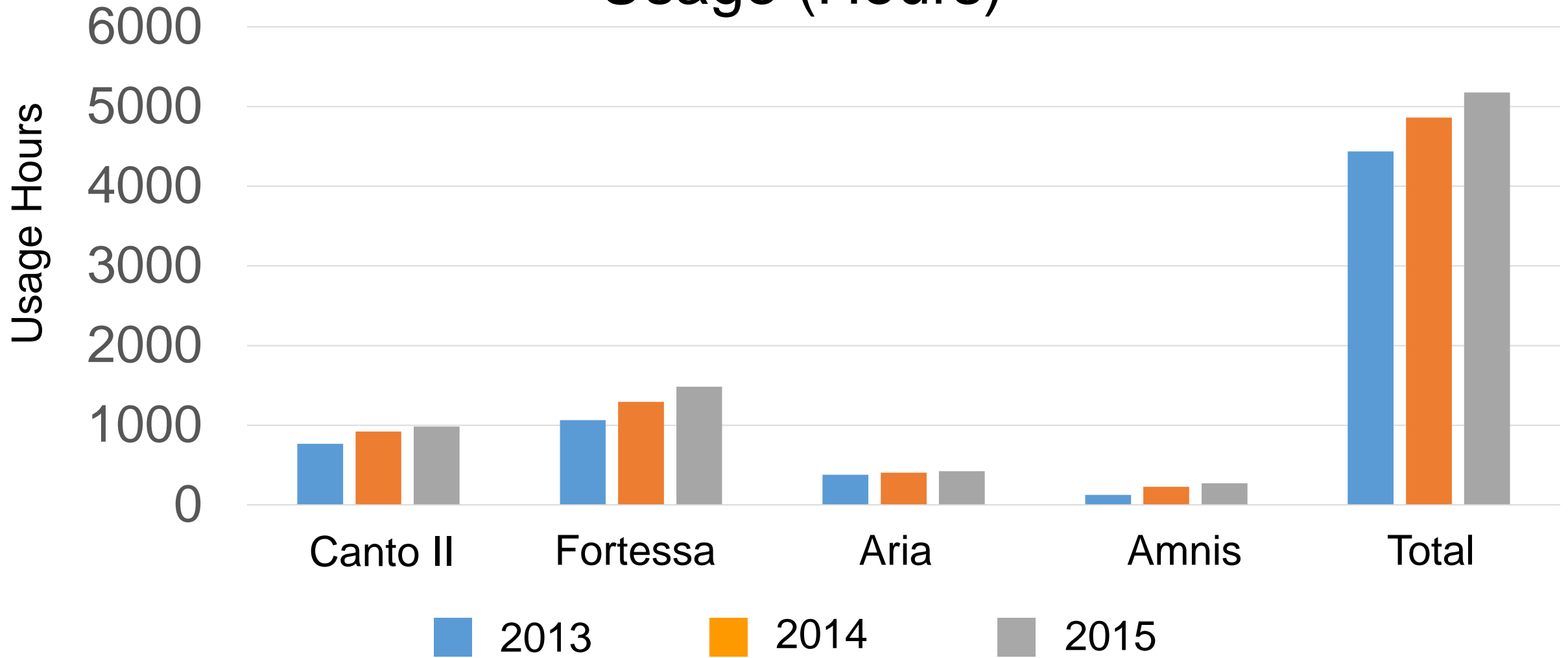


# Amnis ImageStream MKII

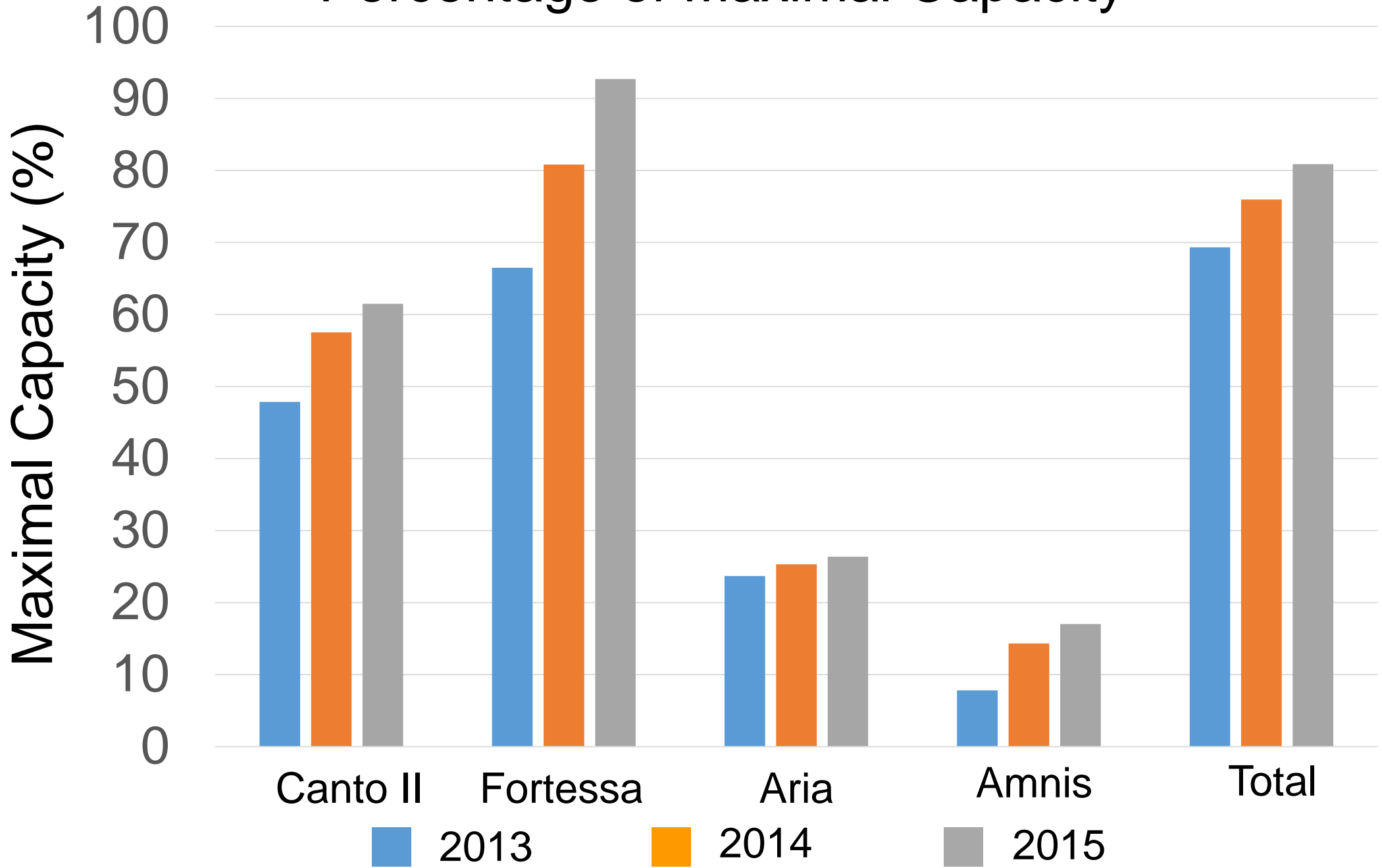


- Nuclear localization
- Internalization of ligands: phagocytosis, pinocytosis
- Cell-cell interaction: immune synapse
- Co-localization of markers
- Cell cycle and mitosis

# Usage (Hours)

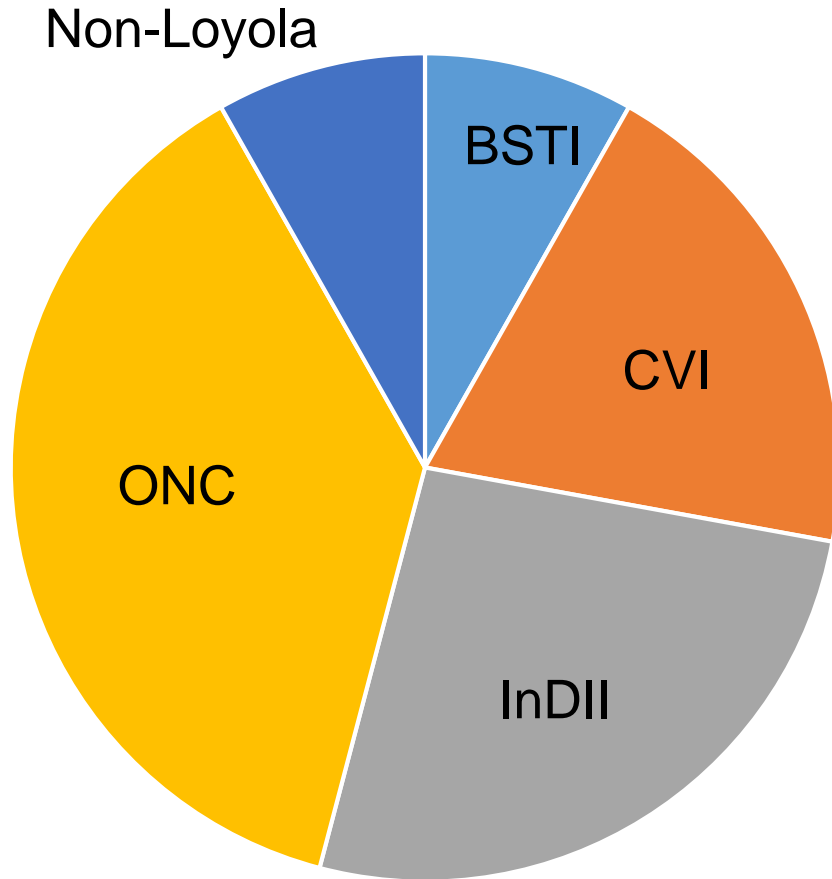


# Percentage of Maximal Capacity



# User Distributions by Institutes and Departments

Institutes



Departments

