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THE LEADING CANCER IMMUNOTHERAPY AND TUMOR IMMUNOLOGY CONFERENCE



The Society For Immunotherapy of Cancer's
36th Annual Meeting & Pre-Conference Programs #SITC21



Grant Opportunities: What Grant Type Shall I Apply For?

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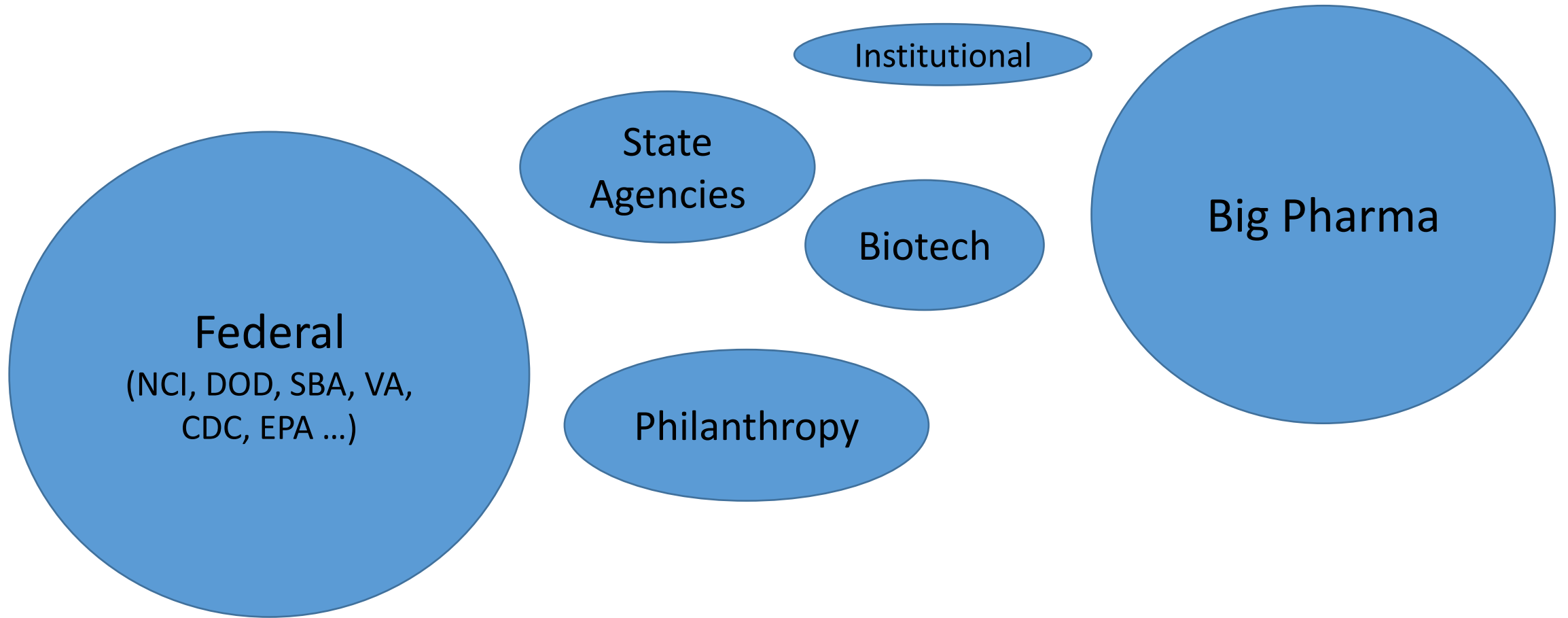
Disclosures

There are no disclosures relevant to the presentation

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Funding of Cancer Immuno-Oncology Research



Main Sources of Cancer Research Funds*

- **NCI: ~ 6B** (2019); the largest pool of cancer research dollars in the US
- **CDMRP (DOD): 312M** (2017) breast: 120M; prostate: 90M; ovarian: 20M; lung: 12M; kidney: 10M; other: 60M
- **Other federal:** SBA (SBIR/STTR), CDC, VA, EPA, DOE, NASA, NSF, Commerce and USDA.
- **State:** Texas, California, NYS, many other states
- **HHMI: ~ 220M** (2016; ~1/3 of \$655 spent on medical research is cancer relevant)
- **ACS: 152M** (2016):
- **AACR: 38M** (2016)
- **Other NGO/Philanthropy** (S. Komen, V Foundation,....)
- **Pharma and Biotech: Billions..** ~40% of Pharma R&D is cancer related and ~ 80% of cancer R&D is currently dedicated to I-O efforts

* In the US; estimates based on the web sites of the relevant organizations

Which Grants to Apply for: Factors to Consider

- Character and topic and of the project
 - Basic science - Translational - Clinical
 - Disease type(s)
- Project duration and budget needed
 - Total amount, and annual needs over time
 - Limits on indirect costs
- Clinical trial included?
- Animal experiments included?
- Eligibility (citizenship/visa status; training/faculty status, clinical privileges)
- Implications for promotion and tenure decisions
- Ability to include (and motivate) co/multi-PIs and co-Is

NIH/NCI Grants: Considerations (A)

- Largest overall budget and variable funding mechanisms/grant types:
 - Individual research grants (R01, R21,...) and team science program grants (P01, SPORE,...)
 - Training and career development grants (T32, F32, F31, F30, K01, K99/R00)
 - Contracts/platform development (U01, U24)
- Highly conducive to team science and clinical research: Program Project grants (P01, SPORE, U01, U24) and multi-PI R01s
- Specific FOA/RFA/PA/PAS/RFPs and open (unsolicited) grant proposals
- Large size and renewable character of many types of NIH grants
- Rigorous review process focused on scientific peer review and impact score
 - Focused review panels/study sections (areas of biology, basic, translational, clinical)
 - Stable review panels with known participants facilitate revision process

NIH/NCI Grants: Considerations (B)

- Funding stability and significant potential for funding multiplication
 - Possible grant renewals and upgrades (such as R21 to R01)
 - Available supplemental funds for multiple mechanisms
 - Matching funds from some states
 - Importance for CCSG funding of NIH cancer centers
- Highly desirable from institutional standpoint (rigor, prestige, stability)
- Awarded to host institutions, but relatively easy to transfer when PI moves
- *High leverage* for the PI & impact on promotions and tenure
- No citizenship restrictions (with exception of training grants)
- *Highly competitive*

CDMRP/DOD Grants: Considerations

- Defined disease area-specific budgets
- Significant role of programmatic review (initial and final): No pay line
- Scientific review process combines peer review and patient advocate review
- Ad-hoc review panels (anonymous to applicants)
- Some grants favor scientific partnerships and mentoring relations
- Some grants have restrictions on clinical trials and animal research
- Strict timelines and significant reporting responsibilities

Foundations/Philanthropy: Considerations

- *Multiple* opportunities, tailored to different cancers and types of research
- Focus on the applicant (and often mentor) rather than research proposal
- Focus on career-boosting potential of the project or research stability of uniquely qualified researchers (such as HHMI)
- Strong letters of support are key
- Often require institutional selection/nomination
- Some foundations may fund only local research (city, region)
- Potential limitations to career stage of applicants and # previous awards
- Often limits on animal and clinical research

Pharma and Biotech Funding: Considerations

- Dominant source of funding of I-O clinical trials which test
 - Combinations of approved drugs
 - Experimental and approved drugs
 - New indications for approved drugs
- Significant source of funding for trial-related correlative studies **associated**
- Source of funding of laboratory studies involving approved and experimental drugs (identification of new mechanisms, prioritization of disease targets and potential combinations for prospective trials)
- Can ***enhance chances for federal funding*** (to identify underlying mechanisms and additional applications)
- Science is important, but ***programmatic fit*** and ***deliverables*** are key
- Strict reporting expectations

NIH/NCI Grants: R01 vs R21

- R01: Main Individual Research Grant
 - Investigator-initiated or solicited (by RFA)
 - Single and multi-PI (MPI) applications allowed
 - 5 YEARS: **renewable**
 - Typically \$250K-500 p.a.
 - Evaluated for predicted **Impact**, based on:
 - **Significance** (important problem?)
 - **Innovation** (conceptual and technical)
 - **PI(s)** (*relevant* training and productivity)
 - **APPROACH** (rigor? defined deliverables?)
 - Environment
- ***Key roles of prelim data & feasibility***
- R21: Exploratory/Developmental Grant
 - Key role of RFA; existing “parent” RFA
 - Typically single PI
 - 2 YEARS; *Cannot* be renewed
 - Up to \$200K per year or \$275k total)
 - Evaluated for predicted **Impact**, based on:
 - **Significance** (important problem?)
 - **INNOVATION** (high risk - high reward)
 - **PI(s)** (*overall* training)
 - **Approach** (rigor? *can lead to R01?*)
 - Environment
- ***Lesser*** roles of prelim. data & feasibility

NIH/NCI Team Science Grants: P01s vs SP0REs

P01: Focus on Common Biology/Mechanism

- 3-5 Research Projects and 3-5 Cores
- Typical budget 1-2M per year
- Each Core needs to support at least 3 projects
- All Projects need to show ***scientific synergy*** (more than a sum of all components)
- Projects are led by Individual Project leaders
- Key roles of Novelty & Scientific Integration (**common theme/mechanism**)
- Can be renewed

SP0RE: Focus on Disease-Type/Pathway

- 3-5 Research Projects and 3-5 Cores
- Typical budget 1.4-1.5M per year
- Each Core needs to support at least 3 projects
- ***All projects need to be translational***
- Projects can be in different research areas
- Projects ***co-led by Clinical and Lab Leaders***
- Focus on ***clinical relevance/impact, past record & feasibility***, rather than novelty
- *Are expected to be renewed*
- ***Training & developmental*** (CDAs & DRPs)

Take Home Message

- NIH/NCI funding dominates but keep in mind all available alternatives
- *Tap the Big (& Growing) Barrel*: Growing interest of pharma in investigator-driven I-O research
- Plan ahead (one source of funding will help you with other sources)
- Consider your needs and the needs of the funding organizations: Make sure they match
- Be mindful of potential restrictions:
 - Eligibility (training & faculty status, citizenship/visa, affiliation, geography)
 - Budget & duration limits
 - Restrictions on spending (trials, animal research)
 - Frequency and character of reporting
- ***"Fail early, fail often, fail forward"* and enjoy the ride!**