

Department of Health and Human Services Public Health Services		LEAVE BLANK—FOR PHS USE ONLY.			
Grant Application <i>Do not exceed 56-character length restrictions, including spaces.</i>		Type	Activity	Number	
		Review Group		Formerly	
		Council/Board (Month, Year)		Date Received	
1. TITLE OF PROJECT Molecular Biomedical Research Initiative (MBRI)					
2. RESPONSE TO SPECIFIC REQUEST FOR APPLICATIONS OR PROGRAM ANNOUNCEMENT OR SOLICITATION <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES (If "Yes," state number and title) Number: RR-04-006 Title: IDeA NETWORKS OF BIOMEDICAL RESEARCH EXCELLENCE (INBRE)					
3. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR			New Investigator <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		
3a. NAME (Last, first, middle) Owens, Patrick, Michael			3b. DEGREE(S) PhD MBA MS		
3c. POSITION TITLE Professor of Chemistry and Chair			3d. MAILING ADDRESS (Street, city, state, zip code) Department of Chemistry Winthrop University 701 Oakland Ave. Rock Hill, SC 29733		
3e. DEPARTMENT, SERVICE, LABORATORY, OR EQUIVALENT Department of Chemistry, Physics, and Geology					
3f. MAJOR SUBDIVISION College of Arts and Sciences					
3g. TELEPHONE AND FAX (Area code, number and extension)					
TEL: (803) 323-4925		FAX: (803) 323-2246			
4. HUMAN SUBJECTS RESEARCH <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes			5. VERTEBRATE ANIMALS <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		
4a. Research Exempt <input type="checkbox"/> No <input type="checkbox"/> Yes If "Yes," Exemption No. _____		4b. Human Subjects Assurance No. _____		4c. NIH-defined Phase III Clinical Trial <input type="checkbox"/> No <input type="checkbox"/> Yes	
		5a. If "Yes," IACUC approval Date 10/07/2004		5b. Animal welfare assurance no A3049-01	
6. DATES OF PROPOSED PERIOD OF SUPPORT (month, day, year—MM/DD/YY) From June 1, 2005 Through May 31, 2010		7. COSTS REQUESTED FOR INITIAL BUDGET PERIOD 7a. Direct Costs (\$) 325,000		8. COSTS REQUESTED FOR PROPOSED PERIOD OF SUPPORT 7b. Total Costs (\$) 418,470 8a. Direct Costs (\$) 1,625,000 8b. Total Costs (\$) 2,092,350	
9. APPLICANT ORGANIZATION Name Winthrop University Address 701 Oakland Avenue Rock Hill, SC 29733 Institutional Profile File Number (if known)			10. TYPE OF ORGANIZATION Public: → <input type="checkbox"/> Federal <input checked="" type="checkbox"/> State <input type="checkbox"/> Local Private: → <input type="checkbox"/> Private Nonprofit For-profit: → <input type="checkbox"/> General <input type="checkbox"/> Small Business <input type="checkbox"/> Woman-owned <input type="checkbox"/> Socially and Economically Disadvantaged		
			11. ENTITY IDENTIFICATION NUMBER 57-6001204 DUNS NO. (if available) 071055214 Congressional District 5th		
12. ADMINISTRATIVE OFFICIAL TO BE NOTIFIED IF AWARD IS MADE Name Anthony J. DiGiorgio Title President Address 701 Oakland Avenue Winthrop University Rock Hill, SC 29733 Tel 803/323-2225 FAX 803/323-3100 E-Mail digiorgioa@winthrop.edu			13. OFFICIAL SIGNING FOR APPLICANT ORGANIZATION Name Anthony J. DiGiorgio Title President Address 701 Oakland Avenue Winthrop University Rock Hill, SC 29733 Tel 803/323-2225 FAX 803/323-3100 E-Mail digiorgioa@winthrop.edu		
14. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR ASSURANCE: I certify that the statements herein are true, complete and accurate to the best of my knowledge. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. I agree to accept responsibility for the scientific conduct of the project and to provide the required progress reports if a grant is awarded as a result of this application.			SIGNATURE OF PI/PD NAMED IN 3a. (In ink. "Per" signature not acceptable.) 		DATE 11/30/04
15. APPLICANT ORGANIZATION CERTIFICATION AND ACCEPTANCE: I certify that the statements herein are true, complete and accurate to the best of my knowledge, and accept the obligation to comply with Public Health Services terms and conditions if a grant is awarded as a result of this application. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties.			SIGNATURE OF OFFICIAL NAMED IN 13. (In ink. "Per" signature not acceptable.)		DATE

DETAILED BUDGET FOR INITIAL BUDGET PERIOD DIRECT COSTS ONLY					FROM Jun 1, 2005	THROUGH May 31, 2006	
PERSONNEL <i>(Applicant organization only)</i>		TYPE APPT. <i>(months)</i>	% EFFORT ON PROJ.	INST. BASE SALARY	DOLLAR AMOUNT REQUESTED <i>(omit cents)</i>		
NAME	ROLE ON PROJECT				SALARY REQUESTED	FRINGE BENEFITS	TOTAL
Patrick M. Owens	PI	10.5	10				
James W. Johnston	Co-PI	10.5	10				
Dwight D. Dimaculangan	Project Investigator	Sum 9	100 50	57,925	5,000 14,481	960 3,765	5,960 18,246
Laura N. Glasscock	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Robin K. Lammi	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Chasta L. Parker	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Takita F. Sumter	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Kristi M. Westover	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Clifton P. Calloway	Core Lab Director	9	25				
Junior Staff Scientist TBA	Core Lab Res. Staff (2)	12	100	38,000	9,500	2,470	11,970
Undergraduate stud. TBA	Research Assistant	Sum (6) Acad (4)			15,000 10,800		15,000 10,800
Graduate students TBA	Graduate Assistant (2)				12,000		12,000
SUBTOTALS →					152,916	27,890	180,806
CONSULTANT COSTS							
EQUIPMENT <i>(Itemize)</i>							
SUPPLIES <i>(Itemize by category)</i>							
Laboratory Research Supplies							135,194
TRAVEL							9,000
PATIENT CARE COSTS		INPATIENT					
		OUTPATIENT					
ALTERATIONS AND RENOVATIONS <i>(Itemize by category)</i>							
OTHER EXPENSES <i>(Itemize by category)</i>							
SUBTOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD							\$ 325,000
CONSORTIUM/CONTRACTUAL COSTS				DIRECT COSTS			
				FACILITIES AND ADMINISTRATIVE COSTS			
TOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD <i>(Item 7a, Face Page)</i> →							\$ 325,000

SBIR/STTR Only: FEE REQUESTED

**DETAILED BUDGET FOR SECOND BUDGET PERIOD
DIRECT COSTS ONLY**

FROM
Jun 1, 2006

THROUGH
May 31, 2007

PERSONNEL <i>(Applicant organization only)</i>		TYPE APPT. <i>(months)</i>	% EFFORT ON PROJ.	INST. BASE SALARY	DOLLAR AMOUNT REQUESTED <i>(omit cents)</i>		
NAME	ROLE ON PROJECT				SALARY REQUESTED	FRINGE BENEFITS	TOTAL
Patrick M. Owens	PI	10.5	10				
James W. Johnston	Co-PI	10.5	10				
Dwight D. Dimaculangan	Project Investigator	Sum 9	100 50	57,925	5,000 14,481	960 3,765	5,960 18,246
Laura N. Glasscock	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Robin K. Lammi	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Chasta L. Parker	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Takita F. Sumter	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Kristi M. Westover	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Clifton P. Calloway	Core Lab Director	9	25				
Senior Staff Scientist TBA	Core Lab Res. Staff (2)	9	100	45,000	45,000	11,700	56,700
Junior Staff Scientist TBA	Core Lab Res. Staff (2)	12	100	38,000	38,000	9,880	47,880
Undergraduate stud. TBA	Research Assistant	Sum (6) Acad (4)			15,000 10,800		15,000 10,800
Graduate students TBA	Graduate Assistant (2)				12,000		12,000
SUBTOTALS					226,416	47,000	273,416

CONSULTANT COSTS

EQUIPMENT *(Itemize)*

SUPPLIES *(Itemize by category)*

Laboratory Research Supplies

42,584

TRAVEL

9,000

PATIENT CARE COSTS

INPATIENT

OUTPATIENT

ALTERATIONS AND RENOVATIONS *(Itemize by category)*

OTHER EXPENSES *(Itemize by category)*

SUBTOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD

\$ 325,000

CONSORTIUM/CONTRACTUAL COSTS

DIRECT COSTS

FACILITIES AND ADMINISTRATIVE COSTS

TOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD *(Item 7a, Face Page)*

\$ 325,000

SBIR/STTR Only: FEE REQUESTED

**DETAILED BUDGET FOR THIRD BUDGET PERIOD
DIRECT COSTS ONLY**

FROM
Jun 1, 2007

THROUGH
May 31, 2008

PERSONNEL <i>(Applicant organization only)</i>		TYPE APPT. <i>(months)</i>	% EFFORT ON PROJ.	INST. BASE SALARY	DOLLAR AMOUNT REQUESTED <i>(omit cents)</i>		
NAME	ROLE ON PROJECT				SALARY REQUESTED	FRINGE BENEFITS	TOTAL
Patrick M. Owens	PI	10.5	10				
James W. Johnston	Co-PI	10.5	10				
Dwight D. Dimaculangan	Project Investigator	Sum 9	100 50	57,925	5,000 14,481	960 3,765	5,960 18,246
Laura N. Glasscock	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Robin K. Lammi	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Chasta L. Parker	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Takita F. Sumter	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Kristi M. Westover	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Clifton P. Calloway	Core Lab Director	9	25				
Senior Staff Scientist TBA	Core Lab Res. Staff (2)	9	100	46,800	46,800	12,168	58,968
Junior Staff Scientist TBA	Core Lab Res. Staff (2)	12	100	39,520	39,520	10,275	49,795
Undergraduate stud. TBA	Research Assistant	Sum (6) Acad (4)			15,000 10,800		15,000 10,800
Graduate students TBA	Graduate Assistant (2)				12,000		12,000
SUBTOTALS					229,736	47,863	277,599

CONSULTANT COSTS

EQUIPMENT *(Itemize)*

SUPPLIES *(Itemize by category)*

Laboratory Research Supplies

38,401

TRAVEL

9,000

PATIENT CARE COSTS	INPATIENT
	OUTPATIENT

ALTERATIONS AND RENOVATIONS *(Itemize by category)*

OTHER EXPENSES *(Itemize by category)*

SUBTOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD **\$ 325,000**

CONSORTIUM/CONTRACTUAL COSTS	DIRECT COSTS
	FACILITIES AND ADMINISTRATIVE COSTS

TOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD *(Item 7a, Face Page)* **\$ 325,000**

SBIR/STTR Only: FEE REQUESTED

DETAILED BUDGET FOR FOURTH BUDGET PERIOD DIRECT COSTS ONLY

FROM Jun 1, 2008	THROUGH May 31, 2009
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PERSONNEL <i>(Applicant organization only)</i>		TYPE APPT. <i>(months)</i>	% EFFORT ON PROJ.	INST. BASE SALARY	DOLLAR AMOUNT REQUESTED <i>(omit cents)</i>		
NAME	ROLE ON PROJECT				SALARY REQUESTED	FRINGE BENEFITS	TOTAL
Patrick M. Owens	PI	10.5	10				
James W. Johnston	Co-PI	10.5	10				
Dwight D. Dimaculangan	Project Investigator	Sum 9	100 50	57,925	5,000 14,481	960 3,765	5,960 18,246
Laura N. Glasscock	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Robin K. Lammi	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Chasta L. Parker	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Takita F. Sumter	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Kristi M. Westover	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Clifton P. Calloway	Core Lab Director	9	25				
Senior Staff Scientist TBA	Core Lab Res. Staff (2)	9	100	48,672	48,672	12,655	61,327
Junior Staff Scientist TBA	Core Lab Res. Staff (2)	12	100	41,101	41,101	10,686	51,787
Undergraduate stud. TBA	Research Assistant	Sum (6) Acad (4)			15,000 10,800		15,000 10,800
Graduate students TBA	Graduate Assistant (2)				12,000		12,000
SUBTOTALS					233,189	48,761	281,950

CONSULTANT COSTS		
EQUIPMENT <i>(Itemize)</i>		
SUPPLIES <i>(Itemize by category)</i>		
Laboratory Research Supplies		34,050
TRAVEL		9,000
PATIENT CARE COSTS	INPATIENT	
	OUTPATIENT	
ALTERATIONS AND RENOVATIONS <i>(Itemize by category)</i>		
OTHER EXPENSES <i>(Itemize by category)</i>		

SUBTOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD	\$ 325,000
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CONSORTIUM/CONTRACTUAL COSTS	DIRECT COSTS	
	FACILITIES AND ADMINISTRATIVE COSTS	

TOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD <i>(Item 7a, Face Page)</i>	\$ 325,000
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SBIR/STTR Only: FEE REQUESTED

**DETAILED BUDGET FOR FIFTH BUDGET PERIOD
DIRECT COSTS ONLY**

FROM
Jun 1, 2009

THROUGH
May 31, 2010

PERSONNEL <i>(Applicant organization only)</i>		TYPE APPT. <i>(months)</i>	% EFFORT ON PROJ.	INST. BASE SALARY	DOLLAR AMOUNT REQUESTED <i>(omit cents)</i>		
NAME	ROLE ON PROJECT				SALARY REQUESTED	FRINGE BENEFITS	TOTAL
Patrick M. Owens	PI	10.5	10				
James W. Johnston	Co-PI	10.5	10				
Dwight D. Dimaculangan	Project Investigator	Sum 9	100 50	57,925	5,000 14,481	960 3,765	5,960 18,246
Laura N. Glasscock	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Robin K. Lammi	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Chasta L. Parker	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Takita F. Sumter	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Kristi M. Westover	Project Investigator	Sum 9	100 50	48,907	5,000 12,227	960 3,179	5,960 15,406
Clifton P. Calloway	Core Lab Director	9	25				
Senior Staff Scientist TBA	Core Lab Res. Staff (2)	9	100	48,672	25,310	6,581	31,891
Junior Staff Scientist TBA	Core Lab Res. Staff (2)	12	100	41,101	21,373	5,557	26,930
Undergraduate stud. TBA	Research Assistant	Sum (6) Acad (4)			15,000 10,800		15,000 10,800
Graduate students TBA	Graduate Assistant (2)				12,000		12,000
SUBTOTALS					190,098	37,557	227,655

CONSULTANT COSTS

EQUIPMENT *(Itemize)*

SUPPLIES *(Itemize by category)*

Laboratory Research Supplies 88,345

TRAVEL 9,000

PATIENT CARE COSTS	INPATIENT	
	OUTPATIENT	

ALTERATIONS AND RENOVATIONS *(Itemize by category)*

OTHER EXPENSES *(Itemize by category)*

SUBTOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD **\$ 325,000**

CONSORTIUM/CONTRACTUAL COSTS	DIRECT COSTS	
	FACILITIES AND ADMINISTRATIVE COSTS	

TOTAL DIRECT COSTS FOR INITIAL BUDGET PERIOD *(Item 7a, Face Page)* **\$ 325,000**

SBIR/STTR Only: FEE REQUESTED

BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD DIRECT COSTS ONLY

BUDGET CATEGORY TOTALS		INITIAL BUDGET PERIOD <i>(from Form Page 4)</i>	ADDITIONAL YEARS OF SUPPORT REQUESTED			
			2 nd	3 rd	4 th	5 th
PERSONNEL: <i>Salary and fringe benefits. Applicant organization only.</i>		180,806	273,416	277,599	281,950	227,655
CONSULTANT COSTS						
EQUIPMENT						
SUPPLIES		135,194	42,584	38,401	34,050	88,345
TRAVEL		9,000	9,000	9,000	9,000	9,000
PATIENT CARE COSTS	INPATIENT					
	OUTPATIENT					
ALTERATIONS AND RENOVATIONS						
OTHER EXPENSES						
SUBTOTAL DIRECT COSTS		325,000	325,000	325,000	325,000	325,000
CONSORTIUM/ CONTRACTUAL COSTS	DIRECT					
	F&A					
TOTAL DIRECT COSTS		325,000	325,000	325,000	325,000	325,000
TOTAL DIRECT COSTS FOR ENTIRE PROPOSED PROJECT PERIOD <i>(Item 8a, Face Page)</i> _____						\$ 1,625,000
SBIR/STTR Only Fee Requested						
SBIR/STTR Only: Total Fee Requested for Entire Proposed Project Period						
<small>(Add Total Fee amount to "Total direct costs for entire proposed project period" above and Total F&A/indirect costs from Checklist Form Page, and enter these as "Costs Requested for Proposed Period of Support on Face Page, Item 8b.)</small>						\$

JUSTIFICATION. Follow the budget justification instructions exactly. Use continuation pages as needed.

Winthrop University Matching Funds Committed to the Proposed Project

Over the past several years, Winthrop University has invested heavily in the necessary infrastructure to transition from a teachers' college to a distinctive comprehensive university with a nationally competitive undergraduate research program. This investment included a new \$12 million (state-funded) Life Science building completed in 1999, a \$7.5 million (Winthrop bond-funded) chemistry building renovation completed in 2002, and a total of \$1.7 million in private and public funding obtained for research equipment in these two buildings.

Winthrop University will build on this strong investment by providing over \$1.7 million of its own funds for targeted support of the molecular biomedical research initiative. (cont'd)

(Budget Justification continued)

Winthrop University Budget Justification

Winthrop University Cost Share Summary: As shown in the table below, Winthrop University will commit over \$1.7 million of its own funds for the INBRE program

Table of Winthrop University's Matching Contributions for the INBRE Program

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Total 5 Years</u>
Release and Research Time	\$ 75,616	\$ 78,640	\$ 81,786	\$ 85,057	\$ 88,459	\$ 409,558
10% of 2 co-Project Directors	15,000	15,000	15,600	16,224	16,873	78,697
50% of 2 junior staff scientists (75% Yr 5)	9,500	38,000	39,520	41,101	64,118	192,239
25% of Senior Staff scientist in Year 5 for research					25,310	25,310
25% of Core Scientist Director	11,250	11,250	11,700	12,168	12,655	59,023
Total Matching Salaries	111,366	142,890	148,606	154,550	207,414	764,826
Fringes (26%)	28,955	37,151	38,638	40,183	53,928	198,855
Equipment Match	100,000	50,000	50,000	50,000	50,000	300,000
Research Supplies Match		50,000	50,000	50,000	50,000	200,000
Renovation	128,000		65,000			193,000
Graduate Tuition Fee Waivers (2 per year)	9,688	10,657	11,723	12,895	14,185	59,148
Total Cash Match	\$378,009	\$290,698	\$363,967	\$307,628	\$375,527	\$1,715,829

Faculty Salaries:

Summer Stipends: Beginning the first full summer of the INBRE grant and for all subsequent years, each of the six supported faculty will receive a \$5,000 research stipend to work full time on the proposed research during the summer; INBRE funds are requested for this.

Teaching Load Reallocation: The Winthrop University faculty teaching load is 12 contact hours (four courses) each semester. During each of the five years, the six project investigators will all receive a 50% reduction in teaching load (the reduction corresponds to four fewer courses each academic year and to two fewer courses each semester) to conduct the proposed research. Two of the course releases will be paid with INBRE funding; the other two will be paid by Winthrop. Based upon advice from its Steering Committee, Winthrop is committed to support six biomedical research projects throughout all five years. As Winthrop's initial investigators are successful and gain external funding, other faculty will be selected—as advised by the Winthrop Steering Committee—to rotate into supported positions vacated by “graduating faculty.” In view of this, institutional salary budget bases used are Winthrop averages for the expected faculty rank of supported six investigators (five assistant professors and one associate professor). These averages have been adjusted by an expected 3% increase prior to the start of the grant. Subsequent annual cost of living increases of 2% are budgeted and will

be all paid by Winthrop. If supported salaries exceed budget-estimated salaries, Winthrop will provide the difference; if supported salaries are less than budget-estimated salaries, the surplus funds will automatically be reallocated to INBRE research supplies.

Staff Scientists Salaries:

Junior Staff Scientists: Two new *permanent*, State employee, 12-month junior staff scientist positions will be created and filled as a key component of the new Biomedical Research Core Laboratory capability at Winthrop that will support biomedical research. 100% of both junior staff scientists' time will be devoted to support of biomedical research.

Winthrop will fill both of these positions beginning the last quarter of the first year of the grant. Their salary will initially be \$38,000 per year with a fringe benefit of 26% for a total cost (for both junior staff scientists) of \$95,760 (salary + direct fringes) during the second year of the grant with a 4% cost-of-living adjustment each year thereafter. During the first year, funds are allocated for a 3-month prorated salary plus benefits for these two positions to allow these scientists to begin work during the last quarter of the first year of the grant. Winthrop will pay half the cost of the salary plus benefits in years one, two, three and four. In the fifth year of the grant, Winthrop will cover 75% of this cost (\$80,788) as it transitions to assume 100% of the costs for the two new staff scientist positions the year after the grant period. Winthrop is requesting funding for the other 50% of these scientists' salaries during years one through four of the grant and the other 25% of these costs during the final year of the grant. These staff scientist positions are an integral part of the necessary infrastructure to conduct biomedical research. Upon completion of the grant, Winthrop will pay the full salaries of these permanent 12-month staff scientist positions.

Senior Staff Scientists: Additional growth in biomedical research capacity at Winthrop will be accomplished via the addition of two Ph.D. biomedical senior staff scientists. The senior staff scientist positions will be new permanent, State employee, faculty lines. Scientists will be hired at the faculty rank and salary of assistant professor, will be expected to teach six hours (50%) advanced biomedical science courses each semester (only Winthrop funds--and no NIH funds--will be used for teaching time), will be full participants in the Biology-Chemistry Biomedical Science dual major program, will be expected to support project investigator needs, and will be essential collaborators for other faculty and students as research blossoms at Winthrop.

In the second year of the grant (August 2006) Winthrop University will fill these new positions; their salary (nine month) will be \$45,000 per year with a fringe benefit rate of 26% for a total cost for both position research portions of \$56,700 (salary + direct fringes) the second year of the grant with a 4% cost-of-living adjustment each year thereafter. Winthrop University will pay 100% of the teaching costs for all five years, half of the research portion costs of the salary plus benefits in year five and will assume 100% of the costs for the two new senior staff scientists' research time the year after the

grant period. Winthrop is requesting funding for only the research time of these senior staff scientists' salaries during years two through four of the grant and for half of the research portion during the final year of the grant.

Upon completion of the grant, Winthrop will pay the full academic year salaries of these senior staff scientist positions. Similar to other faculty, summer stipends for senior staff scientists will come from competitively awarded biomedical research projects they propose.

Student Salaries:

Student Research Assistants: During all five years of the grant, four undergraduate research assistants will be hired and assigned to work with specific INBRE project investigators on the proposed projects. They will be paid an hourly wage of \$6 and will work 15 hours per week during each 15-week semester. It is expected that these students will actually spend a good deal more time working on the proposed projects as these experiences will be exceptional opportunities for their professional development. INBRE funds are requested for this.

Student Summer Stipends: During all five years of the grant, six summer research student stipends of \$2,500 each will be paid using INBRE funds to worked on the proposed INBRE projects. Supported summer students will be expected to work full-time on the research project for ten weeks during the summer. As was the case during the SC-BRIN program, investigators participating on the project will each be expected to apply for internal research grants under the existing institutional program to obtain funds for other students to work on supported projects. Additional funding sources such as the Merck undergraduate research grants and the ACS SEED program will be considered to further increase the number of funded summer research stipends available for undergraduates and for economically disadvantaged high school students.

Graduate Student Stipends and Tuition Waivers: During all five years of the grant, two biology graduate student appointments will be competitively made and paid a stipend of \$6,000 per year to work on the proposed INBRE projects. INBRE funds will be used for these stipends. While this rate is low, it is twice that currently paid to teaching assistants and will be competitive with our peer institutions. Winthrop will provide the funds necessary to waive 9-hours of tuition (a full-time load) each semester. Based on the recent history of tuition increases in South Carolina, a 10% yearly increase in the cost of tuition has been factored in. Winthrop will cover the actual cost of future increases. The tuition waiver plus the stipend represent a total financial package of over \$11,000 per year to each student. Students will be supported for at least two years.

Equipment and Supplies:

During the five years of the grant, Winthrop will maintain the existing infrastructure of scientific equipment in a fully operational state and will make major infrastructure investments with \$500,000 of its own funds for new biomedical research equipment and supplies. \$100K is allocated for equipment in year 1, with \$50K each for equipment and supplies during the other four years. These will be supplemented by INBRE research supply funding—particularly during Year 1 when startup costs are high and Winthrop's

investment will be entirely in equipment. Anticipated equipment needs will undergo a final review during the last quarter of the previous year to ensure funds are being most effectively used for the most current technology and the most critical current needs. If needs exceed allocations, alternate funding through equipment grants, donations and other mechanisms will be sought by project directors.

Anticipated Equipment Needs:

Year 1 (\$100K): Real-time PCR (\$48K), Bioinformatics Laptop and software (\$4K), Thermal Cycler (\$4K), Table-Top Centrifuge (\$7K), Microcentrifuge (\$2K), Freezer (\$2K), Hybridization Incubator (\$1.5K), Nano-positioning stage for Fluorescence Microscope (\$20K), Two CO₂ incubators (\$9.6K), UV/Vis Spectrometer for Enzyme Kinetic Assays (\$12K).

Year 2 (\$50K): Fluorimeter (\$25K), MALDI Source for Winthrop's TOF MS system (\$25K), Upgrade of two bioinformatics workstations (\$11K), Vacuum Centrifuge (\$3.5K), Luminometer (\$6K), Refrigerator (\$1.2K), Capillary HPLC system (\$40K).

Year 3 (\$50K): DNA sequencing analysis package (\$6K), fluorescence microscope (\$40K), Capillary electrophoresis system (\$35K), DNA Sequencer Imaging System (\$40K).

Year 4 (\$50K): New Bioengineering faculty equipment needs

Year 5 (\$50K): New Bioengineering faculty equipment needs, Upgrade two Bioinformatics Workstations and software (\$17K).

Supplies: Over the last four years of the grant, Winthrop will provide \$200K (\$50K annually) of its own funds for research supplies. INBRE funds are also requested for supplies, particularly during Year 1 (over \$130,000), when startup supply costs for the six projects are high and when Winthrop's infrastructure investment focuses primarily on equipment and facilities. These supplies are critically necessary to conduct the proposed research and include materials such as protein reagents, ligands, antibodies, fluorescent stains, cardiac tubes, oligonucleotides, DNA preparation kits, expression plasmids, electrophoresis reagents, crystallography supplies, enzymes, primers, mirrors, lenses, filters, tissue culture materials, Western blot reagent, PCR reagents, and a wide variety of others. Between Winthrop and INBRE funds, approximately \$85-90K is budgeted annually for research supplies among the six projects (~\$15K / project); this level of funding is based upon the estimates of what investigators will need to conduct their projects. As with equipment, during the last quarter of the preceding year, investigators will provide updated input on specific needs for the upcoming year. Supply funding will be allocated based on these needs. If additional supply funds are needed, project co-directors will work to seek alternate sources of funding.

Facility Improvements:

Winthrop will provide the necessary infrastructure funding for necessary facility modifications to support the proposed INBRE effort; the total Winthrop commitment is \$193K over the five-year period.

Year 1: Installation of cold room (\$60K), conversion and equipping of space to accommodate the addition of four new staff scientists (\$68K).

Year 3: Equipping two new bioengineering faculty offices (\$5K), outfitting biomaterials laboratory casework (\$60K).

Travel:

Winthrop is requesting \$9,000 annually of travel funding to support travel to state INBRE meetings, for faculty on the projects to attend state meetings, to travel to USC, MUSC, and Clemson and for faculty and students to present research results at conferences. Travel funds are also necessary to support travel expenses incurred by mentors and by advisory committee members. Travel funds will also be used for professional development of project investigators to attend workshops to keep abreast of new research tools and new developments in their field to supplement the support expected from the State INBRE office.

The project co-directors will manage travel needs among these areas and will find additional funding beyond this as the need arises.