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Matrix of McGowan Institute Projects and Core Competencies

	Medical Devices and Artificial Organs				Cell-Based Therapy				Biomaterials and Functional Tissue Engineering			
Projects	Artificial and Biohybrid Lungs	Liver	Heart, Blood and Vasculature	Pancreas	Central and Peripheral Nervous System	Musculoskeletal (hard & soft Tissue)	Gastrointestinal & Genitourinary	Cancer	Wound Healing	Eye & Ear	Dental	Targeted Drug Delivery
Core Competencies	Artificial and Biohybrid Lungs	Liver	Heart, Blood and Vasculature	Pancreas	Central and Peripheral Nervous System	Musculoskeletal (hard & soft Tissue)	Gastrointestinal & Genitourinary	Cancer	Wound Healing	Eye & Ear	Dental	Targeted Drug Delivery
Pre-Clinical Models	Delude	Gerlach , Mazariegos , Palzer	Kameneva , Pacella , Pinsky , Shroff , Wagner	Whitcomb	Bowser , Gobbel	Mooney , VanSwearingen	Delude , Gilbert , Hackam	Gobbel , Kalinski , Latimer	Beckman , Dohar , T Gilbert , Hackam , Hebda , Mooney , Nieponice , Rosen , Wells			
Biomaterials	Wagner		Badylak , Gawalt , Kameneva , Lo , Sakai , Tillman , Tobita , Wagner , Y Wang	Beckman , Russell , Wagner	Beckman , Cui , Gobbel , Kondziolka , Marra , Russell , Tyler-Kabara , Y Wang	Badylak , Banerjee , Beckman , Campbell , Costello , Kumta , Marra , Meyer , Mooney , Lo , Nettleship , Nieponice , Russell , Sfeir , Tuan	Hackam , Whitcomb	Edington , Gobbel , Little , Kalinski , Kondziolka , Weisz	Badylak , Beckman , Edington , Gerlach , Hackam , Little , Manders , Mooney , Nieponice , Wagner	Charukamnoetkanok	Costello , Nettleship	Bahar , Chapman , Edington , Little , Matyjaszewski , Marra , Wagner

						Wagner , Washburn , Weisz , Wu						
Bioengineering, Biotransport, Biomechanics	Borovetz , Federspiel , Hotchkiss , Kameneva	Gerlach , Monga , Patzer	Antaki , Balazs , Belle , Borovetz , Fuchs , Kameneva , LeDuc , Lin , Lohmann , Pinsky , C Riviere , Robertson , Russell , Sacks , Schaub , Severyn , Shroff , Speziali , Teuteberg , Tillman , Vorp , Wagner , Y Wang , Winowich , Zenker	Gerlach , Parker , Russell	CT Chu , Cui , Gerlach , Kim , Z Li , Lin , Parker , Schwartz , Tyler-Kabara , Y Wang	Beckman , Boninger , Davidson , Debski , Gharaibeh , Kumta , LeDuc , Z Li , Mooney , Nettleship , Piehler , Russell , Sfeir , Vorp , Woo	Jobe , Russell , Sacks , Vorp	Edington , Gerlach , Parker	Badylak , Brienza , Gerlach , Kameneva , Mooney , Sacks	Charukamnoetkanok , Federspiel , Lin , Roy , Wagner	Almarza , Beckman , Beniash , Chapman , Kumta , Russell , Sfeir	Edington , Kumta , Little , Marra , Russell , Sfeir , Wagner
Cellular and Molecular Biology	Delude , Oury	Bahary , Beer-Stolz , Bell , Cheng , DeFrances , Gerlach , Mars , Michalopoulos , Monga , Strom , Venkataramanan , Wells , Wu , Yin , Zamora , Zarnegar , Zeevi	Beer-Stolz , Bodnar , Chen , Chen , Delude , deVallejo , Gleason , Ho , Lo , McTiernan , Pitt , Salama , Vallejo , Wells , Williams	Bahary , Monga , Trucco , Whitcomb	Bowser , Chen , Cui , Gobbel , Kochanek , Kondziolka , Lagenaur , Marra , Pezzone , J Pollock , J Strick , Wang	Antaki , Blair , Campbell , deVallejo , Deasy , Gharaibeh , Gorantla , Huard , Y Li , Marra , Mooney , Phillippi , Siegenthaler , Wells , Wu	Bahary , Delude , Liu , McGee , Wilson	Cheng , V Donnenberg , Edington , Gobbel , Hendricks , Ho , Kondziolka , Lagenaur , Latimer , L Li , Lotze , Michalopoulos , Monga , Pitt , Robbins , Strom , Trucco , Wells , Yuan , Zeevi , Zarnegar	Bodnar , Cummins , deVallejo , Gerlach , Hebda , Mooney , Post , B Riviere , Rosen , J Rubin , Vodovotz , Wells , Yotov	Hendericks , Post , Roy , Schuman , Swamynathan	Almarza , Beniash , Saunders , Sfeir	Bahar , Robbins

<p>Developmental Biology</p>	<p>Delude</p>	<p>Bahary, Gerlach, Lagasse, Monga</p>	<p>Bahary, Cheng, Delude, A Donnenberg, Huard, Lo, Meisel, Pinkus, Tobita</p>		<p>Banerjee, Meisel, Pinkus,</p>	<p>Banerjee, Huard, Y Li, Sakai, YL Wang, Zhou</p>	<p>Bahary, Delude, Hackam, Schatten</p>	<p>Cheng, A Donnenberg, V Donnenberg, Lagasse, Monga</p>	<p>Dohar, Gerlach, Hackam, Hebda, Mooney</p>			
<p>Cellular Therapeutics</p>		<p>Fox, Gerlach, Humar, Michalopoulos, Strom</p>	<p>deVallejo, Gleason, Huard, Marra, Sakai, Tillman, Toma, Vorp, Y Wang</p>	<p>Trucco, Whitcomb</p>	<p>Ambrosio, Gharaibeh, Golla, Gorantla, Huard, Kondziolka, WPA Lee, Marra, Tyler-Kabara</p>	<p>Campbell, Costello, deVallejo, Gharaibeh, Huard, Kumta, Marra, Sfeir, VanSwearingen, Tuan, J Wang, Woo</p>	<p>Huard, Hackam, Lotze, Vorp</p>	<p>Edington, Kondziolka, Kalinski, Michalopoulos, Strom, Trucco, Wells</p>	<p>Bodnar, Dohar, Gerlach, Hackam, Hebda, Nieponice, J Wang, Wells</p>	<p>Charukamnoetkanok</p>	<p>Almarza, Costello, Kumta, Sfeir</p>	<p>Wagner</p>
<p>Clinical Translation</p>	<p>Hotchkiss,</p>	<p>Clermont, DeFrances, Demetris, Fontes, Fox, Gerlach, Humar, Lopez, Mazariegos, E Ochoa, Patzer, Perlmutter, Strom</p>	<p>An, Anderson, Clermont, DeGroff, A Donnenberg, Fera, Fuchs, S Gilbert, Gleason, Kormos, Kreutzer, JS Lee, Lohmann, Luketich, Mathier, McNamara, Pacella, Schwartzman, Shroff, Simon, Speziali, Sullivan, Teuteberg, Tillman, Wearden, Williams, Winowich, Zenati</p>	<p>Fontes, Trucco, Whitcomb</p>	<p>Bowser, CT Chu, Golla, Kochanek, Kondziolka, Huard, Okonkwo, Tyler-Kabara</p>	<p>An, Badylak, Baer, CR Chu, Clermont, Constantine, Costello, Fu, Golla, Gorantla, Kang, WPA Lee, McMahon, Nieponice, JP Rubin, Shestak, Siegenthaler,</p>	<p>An, Day, Delude, Docimo, Gilbert, Jobe, Lotze, McGee, Shapiro, Schatten, Whitcomb, Wilson</p>	<p>Day, A Donnenberg, Edington, Glorioso, Kalinski, Kondziolka, Latimer, Lotze, Luketich, Monga, Parker, Strom, Trucco, Whitcomb</p>	<p>An, Badylak, Dohar, Edington, Falo, S Gilbert, Golla, B Hirsch, R Hirsch, WPA Lee, Manders, Nieponice, J Ochoa, Post, Rosen, Schneeberger, Shestak, Wang</p>	<p>Charukamnoetkanok, Funderburgh, Hirsch, Post, Schuman</p>	<p>Costello, Sfeir</p>	<p>Glorioso, Weiss</p>

Clinical Outcomes (Rehabilitation)	Dew, Hotchkiss	Dew	Dew, Holm, Pinsky	Whitcomb	Bowser, Holm, G Pollock, Z Li, Okonkwo	Brubaker, Cohn, Cooper, Delitto, Ding, Holm, Kumar, Z Li, JP Rubin, VanSwearingen, Zhou,		V Donnenberg	Brienza, Brubaker, Verdolini-Martson	G Pollock		
Immunology	Delude	Bell	An, Badylak, Clermont, deVallejo, Fan, Kormos, Vodovotz, Wearden	Whitcomb		An, Angus, Badylak, Clermont, deVallejo, Vodovotz, Wearden	An, Delude, Kalinski, Little, Lotze, Vodovotz, Whitcomb	deVallejo, Edington, Herberman, Kalinski, Little, Lagasse, Lotze, Parker, Whitcomb	An, Angus, Badylak, Chadham, Constantine, deVallejo, Edington, Ermentrout, Fan, Kellum, Little, Oltvai, Puyana, Roberts, Swigon, T'asan, Wisniewski		Little	Kalinski, Little
Gene Therapy		Liu, Strom	London, Robbins, Toma	Trucco	Bowser, Glorioso	Gharaibeh, Huard, Kumta, Sfeir, Y Li, Tuan, Woo		Billiar, Edington, Glorioso, Little, Lotze, Robbins, Strom, SunderRaj, Trucco	Hebda, R Hirsch, Little, Vodovotz	SunderRaj	Almarza, Kumta, Sfeir	Billiar, Glorioso, Little, Robbins
Imaging	Beer-Stolz	Beer-Stolz	Beer-Stolz, DeGross, Ho, Pacella, Shroff, Villanueva, Wagner	Beer-Stolz, Watkins, Whitcomb	Kochanek, Z Li, Lin, Watkins	Beer-Stolz, Gharaibeh, Kim, Z Li, Robertson, Watkins	Beer-Stolz, Hackam, Lotze,	Edington, Ho, Kalinski, Latimer, Lotze, Parker, Watkins	Beer-Stolz, Hebda, Hackam	Lin		Beer-Stolz
Protein Design & Expression					Bowser	Russell	Delude	SunderRaj		SunderRaj		Bahar