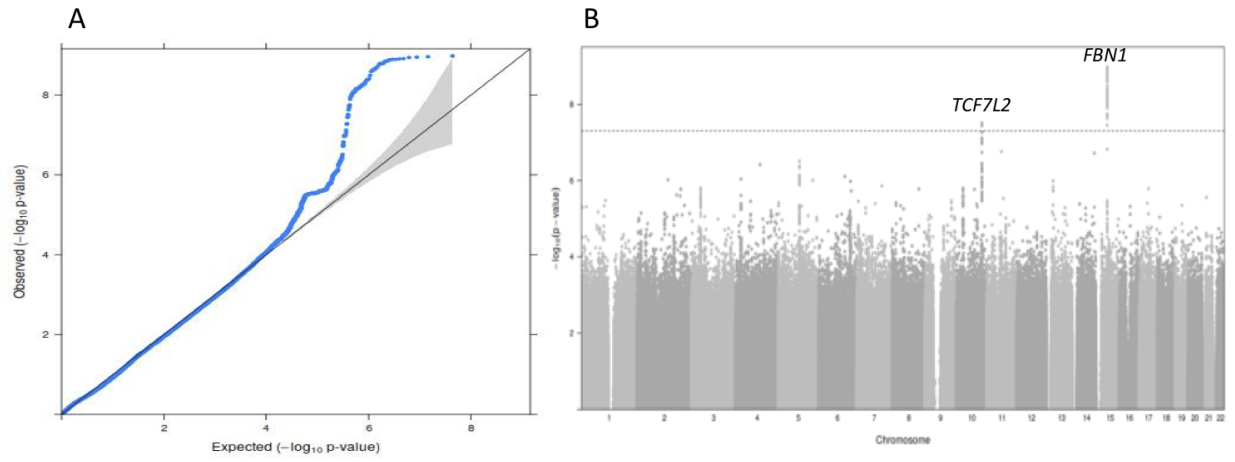


## Supplemental Data

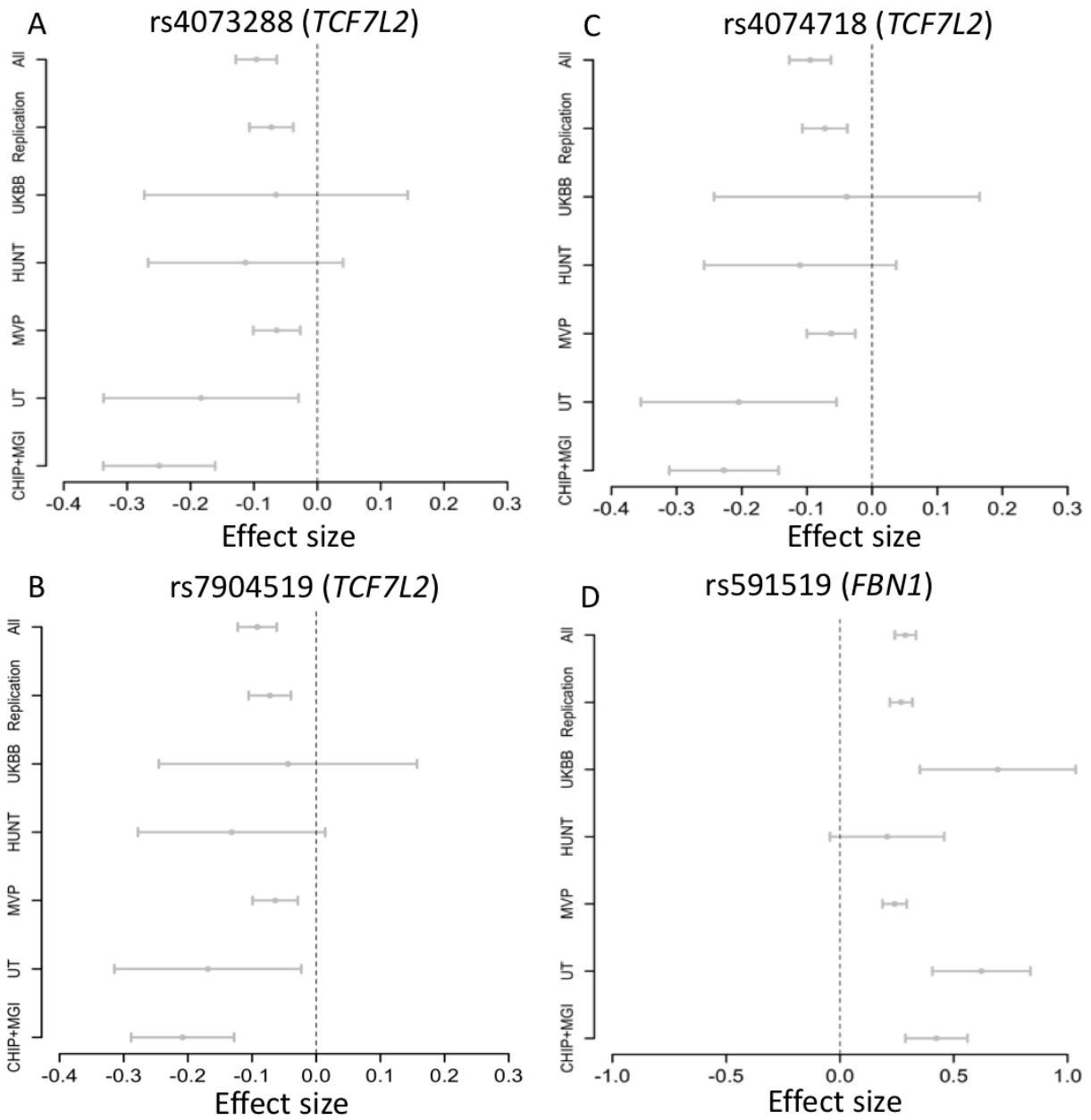
### Regulatory variants in *TCF7L2* are associated with thoracic aortic aneurysm

Tanmoy Roychowdhury, Haocheng Lu, Whitney E. Hornsby, Bradley Crone, Gao T. Wang, Dong-chuan Guo, Anoop K. Sendamarai, Poornima Devineni, Maoxuan Lin, Wei Zhou, Sarah E. Graham, Brooke N. Wolford, Ida Surakka, Zhenguo Wang, Lin Chang, Jifeng Zhang, Michael Mathis, Chad M. Brummett, Tori L. Melendez, Michael J. Shea, Karen Meekyong Kim, G. Michael Deeb, Himanshu J. Patel, Jonathan Eliason, Kim A. Eagle, Bo Yang, Santhi K. Ganesh, Ben Brumpton, Bjørn Olav Åsvold, Anne Heidi Skogholt, Kristian Hveem, VA Million Veteran Program, Saiju Pyarajan, Derek Klarin, Philip S. Tsao, Scott M. Damrauer, Suzanne M. Leal, Dianna M. Milewicz, Y. Eugene Chen, Minerva T. Garcia-Barrio, and Cristen J. Willer

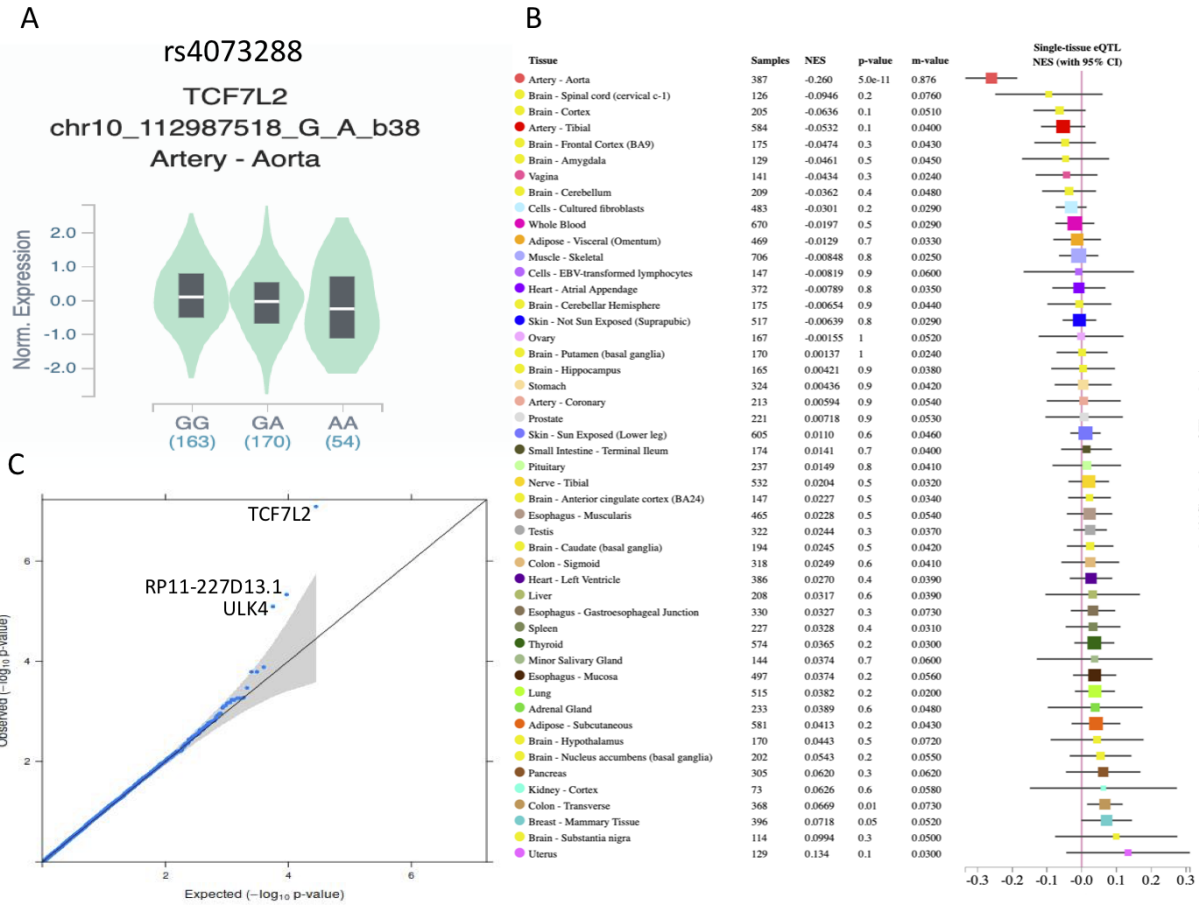
## Supplementary Information



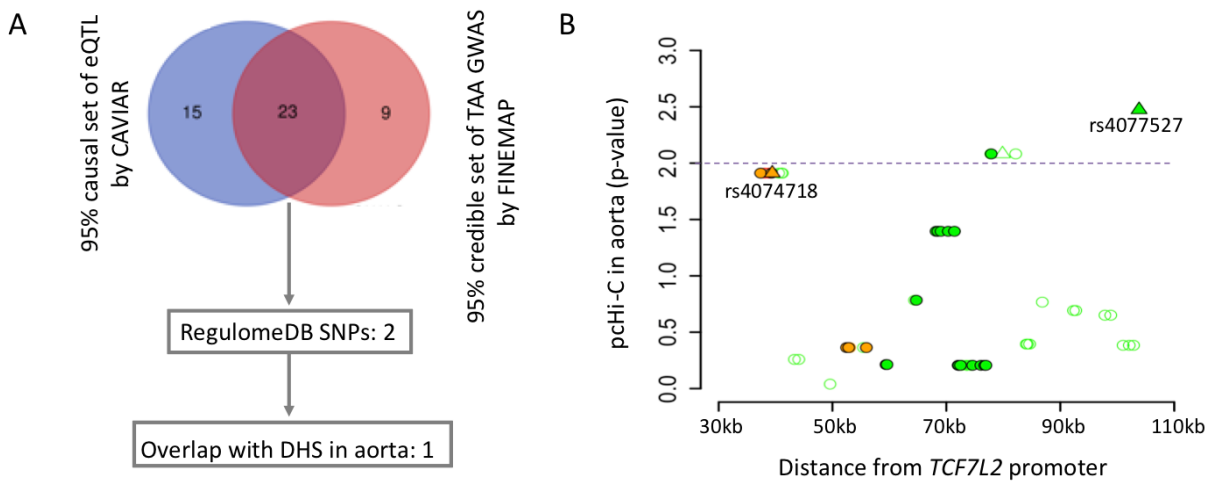
**Figure S1: GWAS of TAA in CHIP/MGI. A) QQ plot. B) Manhattan plot.**



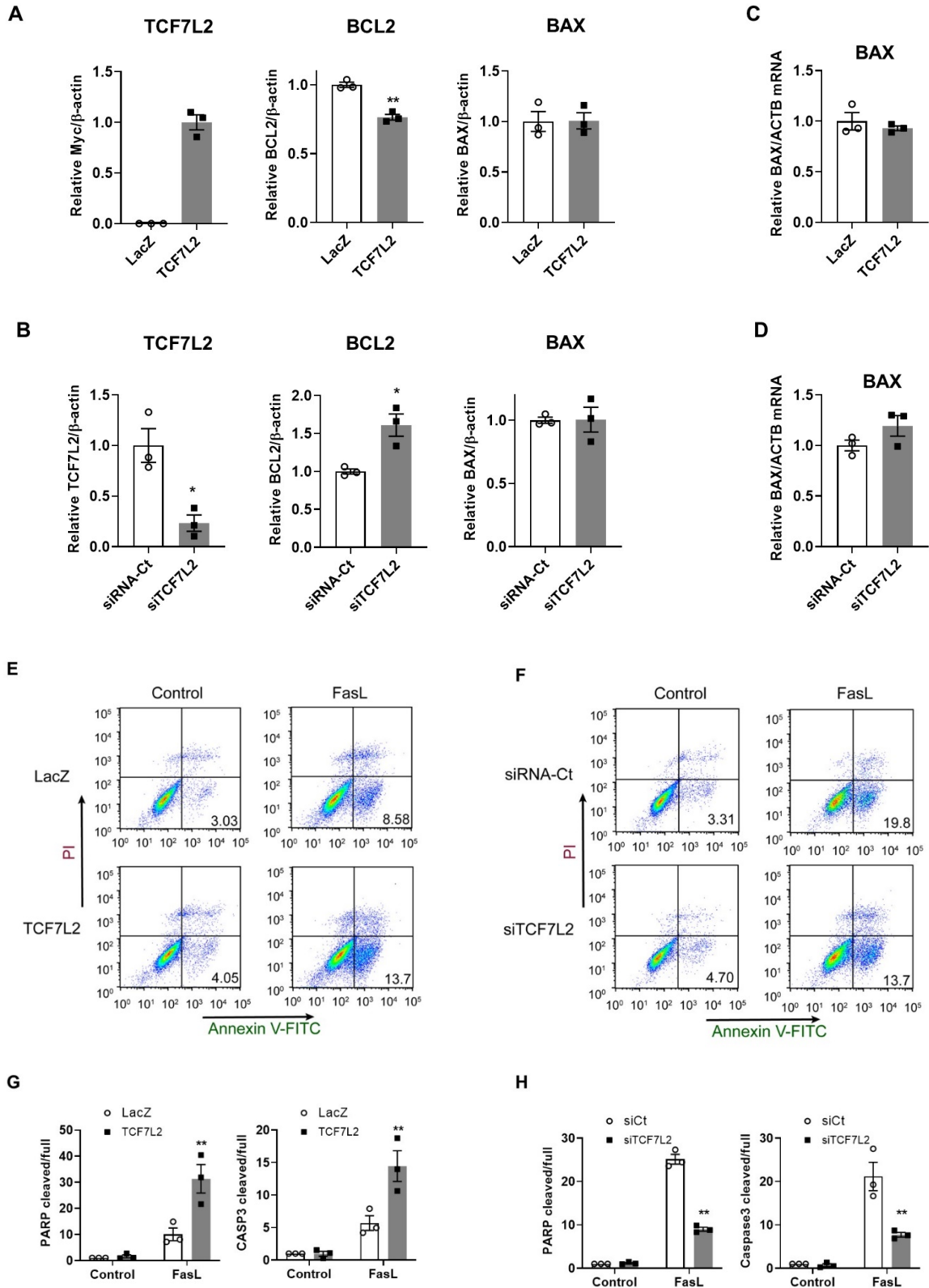
**Figure S2: Effect sizes in discovery and replication cohorts.** Effect size estimation for 3 variants in *TCF7L2* locus (A-C) and *FBN1* index variant (D) in individual cohorts, replication (UT+MVP+HUNT+UKBB), All (CHIP+MGI+Replication).



**Figure S3: eQTL. A)** rs4073288 is an aortic eQTL of *TCF7L2* from GTEx V8. TAA risk allele G is associated with higher expression of gene. **B)** This eQTL is only significant in aorta in GTEx V8. **C)** QQ plot of TWAS using SPrediXcan.



**Figure S4: Fine-mapping of *TCF7L2* loci.** **A)** 23 variants were found to be common between the credible sets of TAA GWAS and eQTL (rs4073980, rs4074720, rs4074718, rs10885402, rs6585197, rs6585199, rs6585200, rs6585201, rs7904519, rs7918599, rs10885406, rs11196190, rs7899529, rs11196191, rs10787472, rs10787473, rs12258200, rs11196193, rs4309084, rs4128598, rs4128597, rs7907610, rs4077527) **B)** Promoter capture Hi-C  $-\log_{10}(\text{p-values})$  of variants that are in LD  $> 0.4$  with TAA index variant rs4073288. Solid shapes are 23 variants mentioned in A. Triangles represent variants prioritized by regulomeDB. The dotted line is the significance threshold as suggested by Jung et al. [PMID: 31501517].



**Figure S5. *TCF7L2* expression is associated with vascular smooth muscle cell apoptosis *in vitro*:** A and B, densitometry of 3 independent Western blots as in Figure 3 A and B. **A)** Overexpression of *TCF7L2* showing significant downregulation of *BCL2*, P=0.0011. Densitometry for Myc-*TCF7L2* shows reproducibility among the three independent experiments. **B)** Knockdown of *TCF7L2* (*TCF7L2*, P=0.0145) showing significant upregulation of *BCL2*, P=0.0154. **C)** upregulation of *TCF7L2* or **D)** siRNA-mediated knockdown of *TCF7L2* does not change expression of *BAX* mRNA. Representative graphs of Annexin-V by FACS analysis in response to **E)** upregulation or **F)** knockdown of *TCF7L2*, respectively (n=3; representative of 3 independent experiments). **G and H,** Densitometry of 3 independent Western blots as in Figure 3 F and H. Data are expressed as the ratio between either cleaved PARP or cleaved caspase-3 and its corresponding full length counterpart. **G)** Overexpression of *TCF7L2* combined with FasL treatment: PARP, P=0.0021; Capase3, P=0.0031. **H)** Downregulation of *TCF7L2* combined with FasL treatment: PARP, P<0.0001; Capase3, P=0.0009.

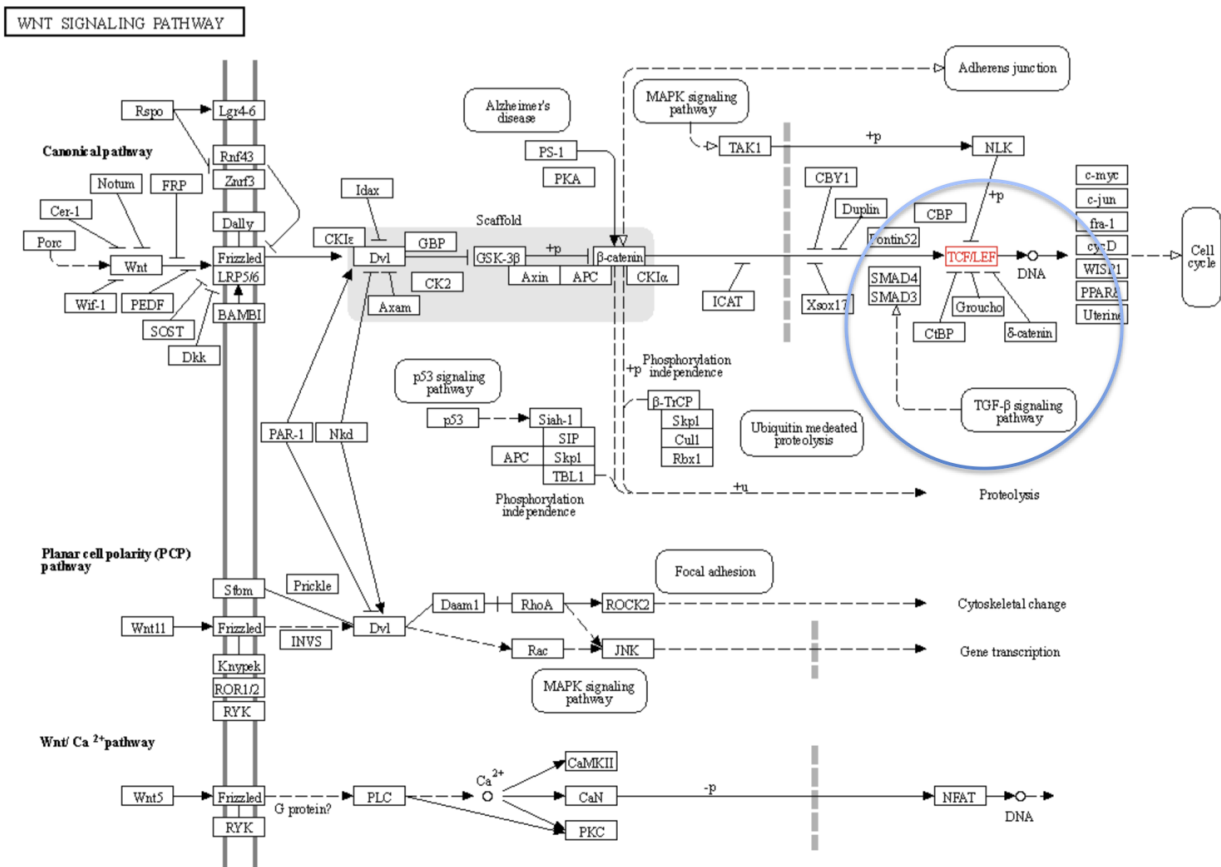


Figure S6: Wnt signaling pathway from KEGG.



**Table S1: Characteristics of discovery and replication cohorts**

<b>CHIP+MGI</b>	<b>Cases</b>	<b>Controls</b>
Male	71.3%	74%
Median birth year	1948	1954
Present or past smoking*	10.2%	10%
<b>UT**</b>		
Male	65.4%	NA
Median Age	65	NA
Present or past smoking	61.4%	NA
<b>MVP</b>		
Male	97.9%	90.6%
Median age	73	69
<b>HUNT</b>		
Male	64.4%	46.9%
Median birth year	1942	1951
Present or past smoking	64.4%	57.9%
<b>UKBB</b>		
Male	68.1%	68.6%
Median birth year	1945	1945
Present or past smoking	67.7%	64.1%

\*Smoking information in MGI was obtained by ICD codes.

\*\*UT data was obtained from supplementary table 1 of LeMaire et al.

(<https://www.nature.com/articles/ng.934#MOESM20>)

**Table S2: Codes used for case-control selection in MVP cohort.****TAA CONTROLS**

**(cannot have any of the following codes, ever)**

- 441 Dissection of aorta, unspecified site
- 441.01 Dissection of aorta, thoracic
- 441.02 Dissection of aorta, abdominal
- 441.03 Dissection of aorta, thoracoabdominal
- 441.1 Thoracic aneurysm, ruptured
- 441.2 Thoracic aneurysm without mention of rupture
- 441.5 Aortic aneurysm of unspecified site, ruptured
- 441.6 Thoracoabdominal aneurysm, ruptured
- 441.7 Thoracoabdominal aneurysm, without mention of rupture
- 441.9 Aortic aneurysm of unspecified site without mention of rupture
- I71.00 Dissection of unspecified site of aorta
- I71.01 Dissection of thoracic aorta
- I71.02 Dissection of abdominal aorta
- I71.03 Dissection of thoracoabdominal aorta
- I71.1 Thoracic aortic aneurysm, ruptured

- I71.2 Thoracic aortic aneurysm, without rupture
- I71.5 Thoracoabdominal aortic aneurysm, ruptured
- I71.6 Thoracoabdominal aortic aneurysm, without rupture
- I71.8 Aortic aneurysm of unspecified site, ruptured
- I71.9 Aortic aneurysm of unspecified site, without rupture
- 746.4 Congenital insufficiency of aortic valve
- Q23.1 Congenital insufficiency of aortic valve

**controls cannot have any of the \*\_REPAIR codes (ASC\_REPAIR, ARCH\_REPEAR, DESC\_REPAIR, ANY\_REPAIR)**

**controls must also have 2 visits to the VA in each of the two years prior to MVP enrollment**

**ASC\_REPAIR (ascending)**

**defined as having any of the following CPT codes:**

- 33860 Ascending aortic replacement with valve resuspension when performed  
Ascending aorta graft, with cardiopulmonary bypass, with or without valve suspension;
- 33861 with coronary reconstruction
- 33858 Ascending aortic replacement with valve resuspension when performed (dissection)
- 33859 Ascending aortic replacement with valve resuspension when performed (non-dissection)
- 33863 Root replacement (Bentall)
- 33864 Valve sparing root reconstruction (David)
- 02QX0ZZ Repair Thoracic Aorta, Ascending/Arch, Open Approach
- 02QX3ZZ Repair Thoracic Aorta, Ascending/Arch, Percutaneous Approach
- 02QX4ZZ Repair Thoracic Aorta, Ascending/Arch, Percutaneous Endoscopic Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Autologous Tissue Substitute,
- 02RX07Z Open Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Zooplastic Tissue, Open
- 02RX08Z Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Synthetic Substitute, Open
- 02RX0JZ Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Nonautologous Tissue Substitute,
- 02RX0KZ Open Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Autologous Tissue Substitute,
- 02RX47Z Percutaneous Endoscopic Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Zooplastic Tissue, Percutaneous
- 02RX48Z Endoscopic Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Synthetic Substitute,
- 02RX4JZ Percutaneous Endoscopic Approach  
Replacement of Thoracic Aorta, Ascending/Arch with Nonautologous Tissue Substitute,
- 02RX4KZ Percutaneous Endoscopic Approach

02VX0DZ	Restriction of Thoracic Aorta, Ascending/Arch with Intraluminal Device, Open Approach
02VX0EZ	Restriction of Thoracic Aorta, Ascending/Arch with Branched or Fenestrated Intraluminal Device, One or Two Arteries, Open Approach
02VX0FZ	Restriction of Thoracic Aorta, Ascending/Arch with Branched or Fenestrated Intraluminal Device, Three or More Arteries, Open Approach
02VX0ZZ	Restriction of Thoracic Aorta, Ascending/Arch, Open Approach
02VX3DZ	Restriction of Thoracic Aorta, Ascending/Arch with Intraluminal Device, Percutaneous Approach
02VX3EZ	Restriction of Thoracic Aorta, Ascending/Arch with Branched or Fenestrated Intraluminal Device, One or Two Arteries, Percutaneous Approach
02VX3FZ	Restriction of Thoracic Aorta, Ascending/Arch with Branched or Fenestrated Intraluminal Device, Three or More Arteries, Percutaneous Approach
02VX3ZZ	Restriction of Thoracic Aorta, Ascending/Arch, Percutaneous Approach

### **ARCH\_REPAIR**

**defined as having any of the following CPT codes:**

- 33866 Hemiarch reconstruction
- 33871 Extended arch procedures (more than hemiarch)
- 33870 Transverse arch graft

### **DESC\_REPAIR (descending)**

**defined as having any of the following CPT codes:**

- 33877 Repair TAAA with graft, with or without bypass
- 33875 Repair TAA with graft, with or without bypass
- 33880 TEVAR (Zone 2)
- 33881 TEVAR (not Zone 2)
- 33877 Repair of thoracoabdominal aortic aneurysm with graft
- 02QW0ZZ Repair Thoracic Aorta, Descending, Open Approach
- 02QW3ZZ Repair Thoracic Aorta, Descending, Percutaneous Approach
- 02QW4ZZ Repair Thoracic Aorta, Descending, Percutaneous Endoscopic Approach
- 02RW07Z Replacement of Thoracic Aorta, Descending with Autologous Tissue Substitute, Open Approach
- 02RW08Z Replacement of Thoracic Aorta, Descending with Zooplastic Tissue, Open Approach
- 02RW0JZ Replacement of Thoracic Aorta, Descending with Synthetic Substitute, Open Approach
- 02RW0KZ Replacement of Thoracic Aorta, Descending with Nonautologous Tissue Substitute, Open Approach
- 02RW47Z Replacement of Thoracic Aorta, Descending with Autologous Tissue Substitute, Percutaneous Endoscopic Approach
- 02RW48Z Replacement of Thoracic Aorta, Descending with Zooplastic Tissue, Percutaneous Endoscopic Approach

02RW4JZ	Replacement of Thoracic Aorta, Descending with Synthetic Substitute, Percutaneous Endoscopic Approach
02RW4KZ	Replacement of Thoracic Aorta, Descending with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach
02VW3DZ	Restriction of Thoracic Aorta, Descending with Intraluminal Device, Percutaneous Approach
02VW0DZ	Restriction of Thoracic Aorta, Descending with Intraluminal Device, Open Approach
02VW0EZ	Restriction of Thoracic Aorta, Descending with Branched or Fenestrated Intraluminal Device, One or Two Arteries, Open Approach
02VW0FZ	Restriction of Thoracic Aorta, Descending with Branched or Fenestrated Intraluminal Device, Three or More Arteries, Open Approach
02VW0ZZ	Restriction of Thoracic Aorta, Descending, Open Approach
02VW3EZ	Restriction of Thoracic Aorta, Descending with Branched or Fenestrated Intraluminal Device, One or Two Arteries, Percutaneous Approach
02VW3FZ	Restriction of Thoracic Aorta, Descending with Branched or Fenestrated Intraluminal Device, Three or More Arteries, Percutaneous Approach
02VW3ZZ	Restriction of Thoracic Aorta, Descending, Percutaneous Approach
<b>ANY_REPAIR</b>	
<b>defined as having ASC_REPAIR, ARCH_REPAIR, DESC_REPAIR, or having any of the of the codes below:</b>	
38.35	Repair thoracic aorta
38.45	Resection thoracic aorta
39.73	TEVAR

**Table S3: Description of chromatin marks from ENCODE.**

Mark	ID	Description of source
DNase-seq	ENCSR422IIZ	Ascending aorta of 51 year old female
DNase-seq	ENCSR968TPO	Ascending aorta of 53 year old female
ChIP-seq of H3k27ac	ENCSR318HUC	Thoracic aorta of 54 year old male
ChIP-seq of H3k27ac	ENCSR069UMW	Ascending aorta of 53 year old female

**Table S4: Relationship of TAA index variant (rs4073288) with T2D independent variants in *TCF7L2* locus.**

<b>T2D independent variants</b>	<b>LD R<sup>2</sup> with rs4073288</b>	<b>TAA p-value of rs4073288 after conditioning with T2D variant</b>
rs7903146	0.2846	4.5×10 <sup>-4</sup>
rs536643418	0.0073	2.4×10 <sup>-8</sup>
rs140242150	0.0008	3.5×10 <sup>-8</sup>
rs7918400	0.08	3.1×10 <sup>-6</sup>
rs184509201	0.0004	3.8×10 <sup>-8</sup>
rs180988137	0.0132	6.1×10 <sup>-8</sup>
rs78025551	0.2468	4.5×10 <sup>-5</sup>
rs34855922	0.0203	3.9×10 <sup>-8</sup>

**Table S5: Description of RegulomeDB ranks and associated variant count in 95% credible set of *TCF7L2* locus.**

<b>RegulomeDB rank</b>	<b>Description</b>	<b>Variant count</b>
3a	TF binding + any motif + DNase peak	2
4	TF binding + DNase peak	4
5	TF binding or DNase peak	12
6	Motif hit	5
7	Others	9

**Table S6: Genetic correlation between TAA and other traits as measured by LDSC.**

<b>Trait</b>	<b><math>r_g</math></b>	<b>S.E.</b>	<b>P</b>	<b>Source/PMID</b>
SBP	-0.0069	0.0813	0.9327	UKBB
DBP	0.2713	0.0916	0.0031	UKBB
Smoking Initiation	0.1966	0.1902	0.3011	30617275
Cig. Per day	0.211	0.1586	0.1833	30617275
Total cholesterol	0.0314	0.1286	0.8072	20686565
HDL	-0.0905	0.1336	0.4983	20686565
LDL	0.0271	0.1565	0.8623	20686565
Triglyceride	0.2149	0.1197	0.0725	20686565
CAD	0.1749	0.108	0.1054	26343387
T2D	0.006	0.147	0.963	22885922
Height	0.3286	0.1139	0.0039	20881960

**Table S7: Primers used for qPCR.**

Gene	Sequence: 5' to 3'
BCL2	Forward:TCATGTGTGTGGAGAGCGTC
	Reverse:GCCGTACAGTTCCACAAAGG
BAX	Forward:CCCGAGAGGTCTTTTCCGAG
	Reverse:CCAGCCCATGATGGTTCTGAT
TCF7L2	Forward:GAATCGTCCCAGAGTGATGTC
	Reverse:ACGACCTTTGCTCTCATTTCC
ACTB	Forward:GCTATCACCTCCCCTGTGTG
	Reverse:GTCATTCCAAATATGAGATGCGT

**Table S8: Effect-size variation within discovery cohort.**

<i>TCF7L2</i> (rs7904519)							
	N <sub>case</sub>	N <sub>control</sub>	AF <sub>case</sub>	AF <sub>control</sub>	OR	95% CI	Chi-square P
CHIP <sub>cases</sub> /MGI <sub>controls</sub>	956	18295	0.414	0.473	0.78	0.71-0.86	3.6×10 <sup>-7</sup>
MGI <sub>cases</sub> /MGI <sub>controls</sub>	395	18295	0.434	0.473	0.84	0.73-0.97	0.02
CHIP <sub>AA</sub> /MGI <sub>controls</sub>	773	18295	0.416	0.473	0.79	0.71-0.87	9.7×10 <sup>-6</sup>
CHIP <sub>DA</sub> /MGI <sub>controls</sub>	83	18295	0.349	0.473	0.59	0.43-0.82	0.001
<i>FBNI</i> (rs16961065)							
	N <sub>case</sub>	N <sub>control</sub>	AF <sub>case</sub>	AF <sub>control</sub>	OR	95% CI	Chi-square P
CHIP <sub>cases</sub> /MGI <sub>controls</sub>	956	18295	0.142	0.10	1.48	1.29-1.69	4.1×10 <sup>-9</sup>
MGI <sub>cases</sub> /MGI <sub>controls</sub>	395	18295	0.124	0.10	1.27	1.02-1.57	0.02
CHIP <sub>AA</sub> /MGI <sub>controls</sub>	773	18295	0.142	0.10	1.48	1.27-1.71	1.1×10 <sup>-7</sup>
CHIP <sub>DA</sub> /MGI <sub>controls</sub>	83	18295	0.114	0.10	1.17	0.70-1.84	0.53

CHIP<sub>AA</sub>: ascending thoracic aneurysm in CHIP; CHIP<sub>DA</sub>: descending thoracic aneurysm in CHIP

**Table S9: Effect-size variation by phenotype definition within MVP cohort.**

	EA	TAA N <sub>case</sub> =6554				Any Thoracic Aortic Repair N <sub>case</sub> =730				Ascending + Arch Repair N <sub>case</sub> =444			
		Beta	SE	OR 95% CI	P	Beta	SE	OR 95% CI	P	Beta	SE	OR 95% CI	P
rs4073288 ( <i>TCF7L2</i> )	A	-0.06	0.02	0.90- 0.98	3.6×10 <sup>-3</sup>	-0.11	0.06	0.8-1	0.05	-0.11	0.07	0.78- 1.03	0.14
rs7904519 ( <i>TCF7L2</i> )	G	-0.06	0.02	0.90- 0.98	4×10 <sup>-4</sup>	-0.12	0.05	0.8- 0.98	0.03	-0.13	0.07	0.76-1	0.06
rs4074718 ( <i>TCF7L2</i> )	A	-0.06	0.02	0.90- 0.98	8×10 <sup>-4</sup>	-0.15	0.06	0.76- 0.97	9×10 <sup>-3</sup>	-0.15	0.07	0.75- 0.99	0.04
Rs591519 ( <i>FBNI</i> )	T	0.24	0.03	1.20- 1.35	9×10 <sup>-20</sup>	0.48	0.07	1.41- 1.85	1.4×10 <sup>-10</sup>	0.57	0.09	1.48- 2.11	4.6×10 <sup>-10</sup>

N<sub>control</sub>=329971 for all comparisons



**VA Million Veteran Program: Core Acknowledgement for Publications**  
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100 Emancipation Drive, Hampton, VA 23667

- Richmond VA Medical Center (Michael Godschalk, M.D.)  
1201 Broad Rock Blvd., Richmond, VA 23249
- Iowa City VA Health Care System (Zuhair Ballas, M.D.)  
601 Highway 6 West, Iowa City, IA 52246-2208
- Eastern Oklahoma VA Health Care System (Douglas Ivins, M.D.)  
1011 Honor Heights Drive, Muskogee, OK 74401
- James A. Haley Veterans' Hospital (Stephen Mastorides, M.D.)  
13000 Bruce B. Downs Blvd, Tampa, FL 33612
- James H. Quillen VA Medical Center (Jonathan Moorman, M.D., Ph.D.)  
Corner of Lamont & Veterans Way, Mountain Home, TN 37684
- John D. Dingell VA Medical Center (Saib Gappy, M.D.)  
4646 John R Street, Detroit, MI 48201
- Louisville VA Medical Center (Jon Klein, M.D., Ph.D.)  
800 Zorn Avenue, Louisville, KY 40206
- Manchester VA Medical Center (Nora Ratcliffe, M.D.)  
718 Smyth Road, Manchester, NH 03104
- Miami VA Health Care System (Hermes Florez, M.D., Ph.D.)  
1201 NW 16th Street, 11 GRC, Miami FL 33125
- Michael E. DeBakey VA Medical Center (Olaoluwa Okusaga, M.D.)  
2002 Holcombe Blvd, Houston, TX 77030
- Minneapolis VA Health Care System (Maureen Murdoch, M.D., M.P.H.)  
One Veterans Drive, Minneapolis, MN 55417
- N. FL/S. GA Veterans Health System (Peruvemba Sriram, M.D.)  
1601 SW Archer Road, Gainesville, FL 32608
- Northport VA Medical Center (Shing Shing Yeh, Ph.D., M.D.)  
79 Middleville Road, Northport, NY 11768
- Overton Brooks VA Medical Center (Neeraj Tandon, M.D.)  
510 East Stoner Ave, Shreveport, LA 71101
- Philadelphia VA Medical Center (Darshana Jhala, M.D.)  
3900 Woodland Avenue, Philadelphia, PA 19104
- Phoenix VA Health Care System (Samuel Aguayo, M.D.)  
650 E. Indian School Road, Phoenix, AZ 85012
- Portland VA Medical Center (David Cohen, M.D.)  
3710 SW U.S. Veterans Hospital Road, Portland, OR 97239
- Providence VA Medical Center (Satish Sharma, M.D.)  
830 Chalkstone Avenue, Providence, RI 02908
- Richard Roudebush VA Medical Center (Suthat Liangpunsakul, M.D., M.P.H.)  
1481 West 10th Street, Indianapolis, IN 46202
- Salem VA Medical Center (Kris Ann Oursler, M.D.)  
1970 Roanoke Blvd, Salem, VA 24153

- San Francisco VA Health Care System (Mary Whooley, M.D.)  
4150 Clement Street, San Francisco, CA 94121
- South Texas Veterans Health Care System (Sunil Ahuja, M.D.)  
7400 Merton Minter Boulevard, San Antonio, TX 78229
- Southeast Louisiana Veterans Health Care System (Joseph Constans, Ph.D.)  
2400 Canal Street, New Orleans, LA 70119
- Southern Arizona VA Health Care System (Paul Meyer, M.D., Ph.D.)  
3601 S 6th Avenue, Tucson, AZ 85723
- Sioux Falls VA Health Care System (Jennifer Greco, M.D.)  
2501 W 22nd Street, Sioux Falls, SD 57105
- St. Louis VA Health Care System (Michael Rauchman, M.D.)  
915 North Grand Blvd, St. Louis, MO 63106
- Syracuse VA Medical Center (Richard Servatius, Ph.D.)  
800 Irving Avenue, Syracuse, NY 13210
- VA Eastern Kansas Health Care System (Melinda Gaddy, Ph.D.)  
4101 S 4th Street Trafficway, Leavenworth, KS 66048
- VA Greater Los Angeles Health Care System (Agnes Wallbom, M.D., M.S.)  
11301 Wilshire Blvd, Los Angeles, CA 90073
- VA Long Beach Healthcare System (Timothy Morgan, M.D.)  
5901 East 7th Street Long Beach, CA 90822
- VA Maine Healthcare System (Todd Stapley, D.O.)  
1 VA Center, Augusta, ME 04330
- VA New York Harbor Healthcare System (Scott Sherman, M.D., M.P.H.)  
423 East 23rd Street, New York, NY 10010
- VA Pacific Islands Health Care System (George Ross, M.D.)  
459 Patterson Rd, Honolulu, HI 96819
- VA Palo Alto Health Care System (Philip Tsao, Ph.D.)  
3801 Miranda Avenue, Palo Alto, CA 94304-1290
- VA Pittsburgh Health Care System (Patrick Strollo, Jr., M.D.)  
University Drive, Pittsburgh, PA 15240
- VA Puget Sound Health Care System (Edward Boyko, M.D.)  
1660 S. Columbian Way, Seattle, WA 98108-1597
- VA Salt Lake City Health Care System (Laurence Meyer, M.D., Ph.D.)  
500 Foothill Drive, Salt Lake City, UT 84148
- VA San Diego Healthcare System (Samir Gupta, M.D., M.S.C.S.)  
3350 La Jolla Village Drive, San Diego, CA 92161
- VA Sierra Nevada Health Care System (Mostaqul Huq, Pharm.D., Ph.D.)  
975 Kirman Avenue, Reno, NV 89502
- VA Southern Nevada Healthcare System (Joseph Fayad, M.D.)  
6900 North Pecos Road, North Las Vegas, NV 89086

- VA Tennessee Valley Healthcare System (Adriana Hung, M.D., M.P.H.)  
1310 24th Avenue, South Nashville, TN 37212
- Washington DC VA Medical Center (Jack Lichy, M.D., Ph.D.)  
50 Irving St, Washington, D. C. 20422
- W.G. (Bill) Hefner VA Medical Center (Robin Hurley, M.D.)  
1601 Brenner Ave, Salisbury, NC 28144
- White River Junction VA Medical Center (Brooks Robey, M.D.)  
163 Veterans Drive, White River Junction, VT 05009
- William S. Middleton Memorial Veterans Hospital (Robert Striker, M.D., Ph.D.)  
2500 Overlook Terrace, Madison, WI 53705