

Introduction

Description

Persistently high systemic arterial blood pressure. Based on multiple readings (blood pressure determination), hypertension is currently defined as when systolic pressure is consistently greater than 140 mm hg or when diastolic pressure is consistently 90 mm hg or more.

[From MeSH ↗](#)

Synonyms

Blood Pressure, High; Blood Pressures, High; High Blood Pressure; High Blood Pressures

Biomarker Associations [what is this?](#)

Biomarkers associated with Hypertension (597 biomarkers)

Show 5 entries		Search:						
Gene/Protein details-all	Significance	Type of Association				Type of Indication		
		Causal 111 associations	Correlative 902 associations	Preventative 35 associations	Negative 87 associations	Disease Mechanism 276 associations	Prognosis 217 associations	Therapeutic Target 41 associations
AT1A	31 associations	2 associations	14 associations	10 associations	5 associations	12 associations	5 associations	10 associations
Albumin	19 associations		18 associations		1 associations	6 associations	3 associations	
VWD	16 associations		16 associations			6 associations	2 associations	
angiotensinogen	15 associations		11 associations	2 associations	2 associations	3 associations	3 associations	2 associations
ADDA	15 associations	1 associations	11 associations		3 associations	3 associations	1 associations	
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Limit to:

☒ Biomarkers with a disease relationship of	Causal	▼
☐ Biomarkers with affected molecule type of	Antibodies	▼
☐ Biomarkers expressed in	Blood	▼

[Retrieve specified biomarkers](#)

Note: Results are returned in the BioKnowledge Search window

Clinical Trials [what is this?](#)

Drugs under clinical trial investigation for treatment of Hypertension (5264 trials)

Provided by [ClinicalTrials.gov](#), [the AACT database](#), and the registries and data partners contributing to the [OpenTrials](#) project.

Show 5 entries

Search:

Drug	Phase	Study Title	Status	Start Date	End Date	Process Date
Bimatoprost	Phase 4	Comparative Study of the Efficacy and Safety of two presentations of Bimatoprost 0.03% available in Brazil: Glamigan(registered trademark) and Lumigan(registered trademark) ? View study report ↗	ongoing	N/A	N/A	OpenTrials Apr 2017
Nifedipine	Phase 4	A Study of Nifecardia SRFC and Adalat OROS in the Treatment of Patients With Essential Hypertension ? View study report ↗	Unknown status	N/A	N/A	ClinicalTrials.gov processed this data on 2022-09-07



 Disease Report
Hypertension

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		View study report ↗					data on 2022-09-07
Travoprost	Phase 4	Bimatoprost Monotherapy vs. Dual Therapy With Travoprost and Timolol in Patients With Glaucoma and Ocular Hypertension ? View study report ↗	Completed	N/A	N/A		ClinicalTrials.gov processed this data on 2022-09-07
Timolol	Phase 4	Bimatoprost Monotherapy vs. Dual Therapy With Travoprost and Timolol in Patients With Glaucoma and Ocular Hypertension ? View study report ↗	Completed	N/A	N/A		ClinicalTrials.gov processed this data on 2022-09-07

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Drug Approval Status:

As reported by [ChEMBL](#) ↗ and sources cited in the table below:

Show 5 ▼ entries

Search:

Drug	Status	References
Triamterene	approved	ClinicalTrials ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗ DailyMed ↗
Nebivolol	approved	ClinicalTrials ↗ FDA ↗
Perindopril	approved	ClinicalTrials ↗ FDA ↗ FDA ↗

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		DailyMed ↗	DailyMed ↗	DailyMed ↗	DailyMed ↗	DailyMed ↗	DailyMed ↗	DailyMed ↗	DailyMed ↗	DailyMed ↗
Clevidipine	approved	ClinicalTrials ↗	FDA ↗							
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Disease Characteristics [what is this?](#)

Subtypes or forms of Hypertension

familial; idiopathic; less severe; early onset; increased incidence of idiopathic form; drug resistant ...[\[details\]](#)

Biological processes affected by Hypertension

response to oxidative stress; vasodilation; regulation of blood pressure; long-chain fatty acid biosynthetic process ...[\[details\]](#)

Cell types or tissues affected by Hypertension

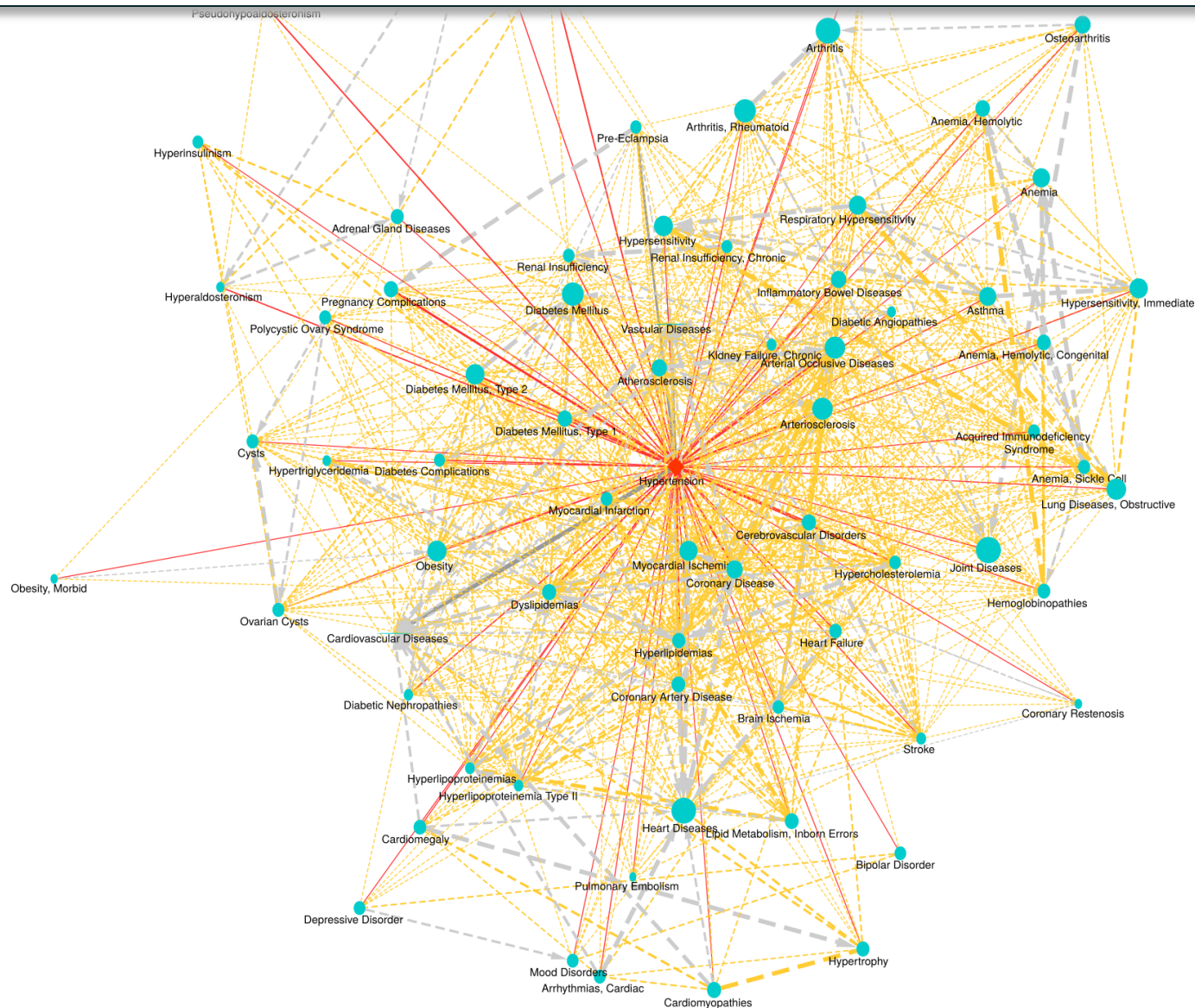
leukocytes; platelets; monocytes; smooth muscle cells; uterus; umbilical cord; neutrophils; urine; medulla ...[\[details\]](#)

Diseases associated with Hypertension

Albuminuria; Hypertrophy, Left Ventricular; Pre-Eclampsia; Renal Plasma Flow; Stroke; Disease Susceptibility ...[\[details\]](#)

Disease similarity by common biomarkers [what is this?](#)

Disease vicinity map of Hypertension [Details ↗](#)



Edges are shown for $FDR < 0.05$ and overlap size ≥ 2 . The primary disease is represented by a red diamond shape, neighboring diseases by blue circles. Solid edges connect the primary disease to neighboring diseases. Dashed edges connect neighboring diseases. Gray arrows point from a child disease to the parent

Download as [.png](#) [.svg](#)

Disease vicinity heatmap of Hypertension: [View](#)

In the heatmap a blue area represents connections between causal genes (rows) and diseases (columns). The primary disease is highlighted with dark blue coloring. The annotation bar above the heatmap indicates MeSH hierarchy parents with dark gray, MeSH hierarchy children with light gray, and other similar diseases with red colors.

Show entries Search:

Disease	MeSH ID	MeSH relationship	Overlap (common biomarkers)	False discovery rate (FDR)
Heart Diseases	D006331	no linear hierarchical relationship	77	0.00000
Pregnancy Complications	D011248	no linear hierarchical relationship	60	0.00000
Renal Tubular Transport, Inborn Errors	D015499	no linear hierarchical relationship	10	0.00000
Diabetes Mellitus	D003920	no linear hierarchical relationship	66	0.00000
Dyslipidemias	D050171	no linear hierarchical relationship	34	0.00000

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Mouse Models [what is this?](#)

Mouse genes which provide a model for Hypertension when knocked out

Show entries Search:

Ace2	[details]	Angiotensin I converting enzyme 2, a carboxypeptidase that regulates ERK, AKT, and insulin receptor signaling cascades, angiotensin levels in blood, heart contraction, and blood pressure; human ACE2 is associated with myocardial infarction and cirrhosis
Add2	[details]	Adducin 2 (beta), binds to actin and calmodulin, regulates blood pressure and actin polymerization or depolymerization, promotes neuronal synaptic plasticity; gene mutations and SNPs in the human, mouse, and rat ADD2 are associated with hypertension

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Adra2b	[details]	Adrenergic receptor alpha 2b, acts in GPCR signaling and MAPK activation, involved in synaptic transmission, memory, neuron differentiation, and regulation of blood pressure; human ADRA2B is associated with obesity and hypertension
Agt	[details]	Angiotensinogen, a hormone that acts in cell signaling, apoptosis, and MAPK activation, regulates heart rate, vasodilation, and blood pressure; human AGT is associated with Alzheimer disease, arteriosclerosis, coronary disease, and hypertension

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Identifiers [what is this?](#)

BIOBASE accession : DI000007306

MeSH ID : [D006973](#)

External disease identifiers

 Provided by the [Mondo Disease Ontology](#) and the [Disease Ontology](#).

DOID	Disease Ontology	10763
EFO	Experimental Factor Ontology	0000537
HP	Human Phenotype Ontology	0000822
ICD10	International Classification of Diseases	I10
ICD10	International Classification of Diseases	I10-I15
ICD10	International Classification of Diseases	I15
ICD9	International Classification of Diseases	401-405.99
ICD9	International Classification of Diseases	997.91
MONDO	Mondo Disease Ontology	0005044
NCIT	NCI Thesaurus	C3117
SCTID	SNOMED Clinical Terms	38341003
UMLS	Unified Medical Language System	C0020538

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1	31430320 ↗	Pinheiro, DS, Santos, RS, Jardim, PCBV, Silva, EG, Reis, AAS, Pedrino, GR, Ulhoa, CJ, The combination of ACE I//D and ACE2 G8790A polymorphisms reveals susceptibility to hypertension: A genetic association study in Brazilian patients. PLoS ONE 14 (8) e0221248-e022124 (2019). Show abstract
2	30917908 ↗	Fan, Z, Wu, G, Yue, M, Ye, J, Chen, Y, Xu, B, Shu, Z, Zhu, J, Lu, N, Tan, X, Hypertension and hypertensive left ventricular hypertrophy are associated with ACE2 genetic polymorphism. Life Sci 225 39-45 (2019). Show abstract
3	25739000 ↗	Wang, B., Li, C., Huai, R., Qu, Z., Overexpression of ANO1//TMEM16A, an arterial Ca ²⁺ -activated Cl ⁻ channel, contributes to spontaneous hypertension. J Mol Cell Cardiol 82 22-32 (2015). Show abstract
4	25500260 ↗	Zhu, X., Feng, T., Tayo, B. O., Liang, J., Young, J. H., Franceschini, N., Smith, J. A., Yanek, L. R., Sun, Y. V., Edwards, T. L., Chen, W., Nalls, M., Fox, E., Sale, M., Bottinger, E., Rotimi, C., Liu, Y., McKnight, B., Liu, K., Arnett, D. K., Chakravati, A., Cooper, R. S., Redline, S., Meta-analysis of correlated traits via summary statistics from GWASs with an application in hypertension. Am J Hum Genet 96 (1) 21-36 (2015). Show abstract
5	25469260 ↗	Fujimaki, T., Oguri, M., Horibe, H., Kato, K., Matsuoka, R., Abe, S., Tokoro, F., Arai, M., Noda, T., Watanabe, S., Yamada, Y., Association of a transcription factor 21 gene polymorphism with hypertension. Biomed Rep 3 (1) 118-122 (2015). Show abstract

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