

**PCT Recordation of Search History**

Case/PCT Application Number: PCT/US15/32058

CLIN Number/Technical Field of PCT Application: 0007 Biotechnology

Date(s) During Which the Search was Conducted: 04 August to 05 August 2015

Date of Completion of Recordation of Search History Form: 05 August 2015

Research Analyst Initials: DAS

Search Approval Official (SAO) Initials: ECW

**Field of Search/Classification Information:**

IPC(8) Classification(s): A61K 38/00, 47/00 (2015.01)

CPC Classification(s): A61K 38/00, 47/48238; C07K 7/06

USPC Classification(s): 514/1.2, 1.1, 1

**Database(s) Searched (Patent and Non-Patent Literature (NPL), Including Sub-Databases and Files Searched) and Search Terms Used:**

PatSeer (US, EP, WO); PubMed; EBSCO; Dialog ProQuest; Google; Google Scholar

Search Terms Used: recombinant; yeast, 'xylose transporter,' 'Candida intermedia,' 'GXS1,' 'mutant motif,' 'glucose mitigation,' 'GGFIMG,' 'GFFIMG,' 'GGFISG,' 'GFFISG'

**Database Search String Recordation, Including Dates of Searches):****Patent Database Search Strategy/Results:**

Set	Search Strings	Hits	Date
L23		1	4-Aug-15

	(TACD:(xylose transport*3) wp (xylose w2 prefer*5) AND PBC:(US OR EP OR WO)) and ( ( (TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)) ) or ( (PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:((recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)) ) ) or (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)) )		
L22		26	4-Aug-15
	TACD:(xylose transport*3) wp (xylose w2 prefer*5) AND PBC:(US OR EP OR WO)		
L21		7	4-Aug-15
	( (IC:(A61K*) and TACD:(xylose transport*2) AND PBC:(US OR EP OR WO)) or (CPC:(A61K or C07K*) and TACD:(xylose transport*2) AND PBC:(US OR EP OR WO)) or (UC:(514*) and TACD:(xylose transport*2) AND PBC:(US OR EP OR WO)) ) and ( ( (TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)) ) or ( (PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:((recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)) ) )		
L20		6	4-Aug-15
	UC:(514*) and TACD:(xylose transport*2) AND PBC:(US OR EP OR WO)		

L19		134	4-Aug-15
	CPC:(A61K or C07K*) and TACD:(xylose transport*2) AND PBC:(US OR EP OR WO)		
L18		22	4-Aug-15
	IC:(A61K*) and TACD:(xylose transport*2) AND PBC:(US OR EP OR WO)		
L17		0	4-Aug-15
	TACD:(gly gly phe ile met gly) or (gly phe phe ile met gly) or (gly gly phe ile ser gly) or (gly phe phe ile ser gly) AND PBC:(US OR EP OR WO)		
L16		0	4-Aug-15
	TACD:GGFIMG or GFFIMG or GGFISG or GFFISG AND PBC:(US OR EP OR WO)		
L15		13	4-Aug-15
	(( ( (TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)) ) or ( (PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:((recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)) ) ) and (TACD:(recombin*5 or engineer*3 or transform*4) ws (yeast*1 or saccharomyces) AND PBC:(US OR EP OR WO)) ) and (TACD:(transport*3 or import*3 or uptak*2 or utiliz*5) w2 xylose AND PBC:(US OR EP OR WO))		
L14		2618	4-Aug-15
	TACD:(transport*3 or import*3 or uptak*2 or utiliz*5) w2 xylose AND PBC:(US OR EP OR WO)		
L13		15	4-Aug-15

	(( (TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)) ) or ( (PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:((recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)) ) ) and (TACD:(recombin*5 or engineer*3 or transform*4) ws (yeast*1 or saccharomyces) AND PBC:(US OR EP OR WO))		
L12		124577	4-Aug-15
	TACD:(recombin*5 or engineer*3 or transform*4) ws (yeast*1 or saccharomyces) AND PBC:(US OR EP OR WO)		
L11		16	4-Aug-15
	(( (TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)) ) or ( (PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:((recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)) ) )		
L10		2	4-Aug-15
	(TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO))		
L9		11937	4-Aug-15

	TACD:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)		
L8		0	4-Aug-15
	(TAC:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO))		
L7		1090	4-Aug-15
	TAC:xylose ws (transport*5 or utiliz*5 or uptake or source) AND PBC:(US OR EP OR WO)		
L6		0	4-Aug-15
	((PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:(recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)) ) and (TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO))		
L5		144	4-Aug-15
	TACD:(muta*5 or variant*1) wp ((lessen*3 or decreas*3 or lower*3 or mitigat*3) w2 (glucose w2 (uptake or inhibit*3 or compet*7 or transport*5))) AND PBC:(US OR EP OR WO)		
L4		14	4-Aug-15
	((PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)) or (TACD:(recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO))		
L2		3	4-Aug-15

	PNC:(US2012329109 OR US2011195448 OR US2009053784) AND PBC:(US OR EP OR WO)		
L3		11	4-Aug-15
	TACD:((recombina*6 or engineer*3) wp (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)		
L1		1	4-Aug-15
	TAC:((recombina*6 or engineer*3) ws (xylose w2 transport*3)) and (intermedia w2 (GXS1 or GXS-1 or GXS 1 or glucose xylose symport*3)) AND PBC:(US OR EP OR WO)		

### Non-Patent Literature (NPL) Search Strategy/Results:

#### Google/Google Scholar:

##### 05 August 2015:

- recombinant xylose transporter glucose mitigation OR glucose inhibition
- recombinant yeast xylose transporter Candida intermedia GXS1
- recombinant xylose transporter GXS1 mutant
- xylose transporter glucose insensitivity
- xylose transporter xylose preference

#### Dialog ProQuest

##### 05 August 2015:

- "recombinant xylose transporter" AND ("glucose mitigation" OR "glucose inhibition")

- “recombinant yeast” AND “xylose transporter” AND Candida intermedia AND GXS1
- “recombinant xylose transporter” AND (“GXS1 mutant” OR glucose xylose symport mutant”)
- “xylose transporter” AND “glucose insensitivity”
- “xylose transporter” AND “xylose preference”

**PubMed:**

**05 August 2015:**

- “recombinant xylose transporter” AND (“glucose mitigation’ OR “glucose inhibition”)
- “recombinant yeast” AND “xylose transporter” AND Candida intermedia AND GXS1
- “recombinant xylose transporter” AND (“GXS1 mutant” OR glucose xylose symport mutant”)
- “xylose transporter” AND “glucose insensitivity”
- “xylose transporter” AND “xylose preference”
- xylose transporter AND AU=Alper
- xylose transporter AND AU=Young
- xylose transporter AND AU=Lee

**EBSCO:**

**05 August 2015:**

- “recombinant xylose transporter” AND (“glucose mitigation’ OR “glucose inhibition”)

**NCBI Protein BLAST:**

**04 August 2015:**

- GGFIMG
- GFFIMG
- GGFISG
- GFFISG
- GGDIMG
- GFDISG